ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. XCIX, No. 26 — PAPER — Thursday, December 27, 1934

Record December Newsprint Output Foreseen

Many Canadian Mills Operating At Full Capacity—Production Will Reach New High for Recent Years—Newspaper Publishers Make Efforts to Secure Large Stocks Before Price Increase Goes Into Effect on January 1—Quebec Premier Determined to Preserve Forestry Resources and Newsprint Industry

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 24, 1934—From present indications the December output of newsprint from Canadian mills will reach a new high record, at least for recent years. The reason is not only large orders for current requirements, consequent on the big volume of Christmas advertising, but the fact that publishers have been making efforts to lay in as large a stock as possible before the increase in price goes into effect on January 1.

Quite a number of mills have been working at capacity during the past month, and several to whom large orders have been offered have intimated that it is impossible to give delivery this month, that in fact they could not supply another pound of newsprint this month.

Premier Defends Action

Meanwhile Premier Taschereau, of Quebec, has announced himself as "unconcerned" at threats of the American Newspaper Publishers' Association to advise its members to turn their attention immediately to other available and potential sources of newsprint supply, as a result of the action of the Quebec Government in forcing an increase in price. He said in an interview: "If the American publishers could have resorted to other sources of supply, they would have done so long ago. But they cannot do without our newsprint, and they know it."

"What about their claims to the effect that they can effectively and economically produce newsprint from southern pine?" the Prime Minister was asked.

"Is the United States a country of miracles?" was his reply. He added: "It always amuses me to see the United States people raise complaints as to our alleged intervention in existing contracts, and this at a time when all contracts in that country are subjected to governmental intervention through the NRA.

"But we are not concerned with existing contracts. What we are determined to do is to see to it that our mills are not operating at a loss through exploitation of our forestry reserves.

"Companies which persist in maintaining ruinous low prices will receive no favors from the Quebec Government, and the favors which we can accord them are many, including reduction of stumpage fees, exemption from certain penalties, and permission to cut trees of a diameter less than that set by our provincial laws.

"At the present time we have too many of our companies furnishing newsprint to the United States at a loss, and they are not paying one cent in dividends to shareholders or to bondholders who have invested millions of dollars in the mills. Continuance of such a policy is uneconomic, unsound. We are determined to see to it that our forestry reserves, our wood, our newsprint is of benefit to the people of Quebec."

James Maclaren Contracts Settled

One of the developments of the past week has been in connection with the James Maclaren Company, which, it was discovered, were to supply newsprint under certain contracts at less than $42.50 per ton. It developed that the company had taken over contracts from bankrupt concerns which were supplying newsprint at a low price, and that the company had added an extra $2.50 per ton, thinking that satisfied the requirements, although the total price with that addition was still less than $42.50 per ton. The government got into touch with the company, and Premier Taschereau later announced that the matter had been settled to the satisfaction of the government.

Meeting of Newsprint Heads

The day following Premier Taschereau's announcements, as above, a meeting of representatives of the newsprint company and the government was held in Quebec, and at this meeting it is understood the reported agreement of the James Maclaren Company to sell newsprint below the $42.50 per ton price was discussed. Following the meeting Premier Taschereau said the delegates had agreed to meet among themselves and to report within ten days what decisions they took.

"We showed them the necessity of the companies reaching a mutual understanding," he declared, "so that newsprint prices might be stabilized and sufficiently lucrative to enable companies to operate on a profitable basis. They promised to meet and discuss the situation among themselves and see us again in about ten days."

The delegation of newsprint interests was composed of A. H. Graustein, president of the Canadian International

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Varied Activities of Wisconsin Paper Mills

Manufacturers of Paper Take Part In Movement to Convert Sulphite Wastes Into Fuel, Thus Permitting Salvage Instead of Stream Pollution—Dells Paper & Pulp Co., of Eau Claire, to Retire Bonds—J. W. Kieckhefer Visits Paper Chemistry Institute

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 24, 1934—Conversion of sulphite wastes into fuel, thus permitting salvage instead of stream pollution, will be worked out co-operatively during the coming year by Wisconsin paper mills and the Wisconsin Board of Health, according to announcement of L. F. Warrick, state sanitary engineer.

Experimentation has been in progress for some time, and Mr. Warrick believes a satisfactory process can be developed. His findings were submitted in a report made recently to a joint meeting of the state committee on water pollution, headed by Adolph Kannenberg, of the Wisconsin Industrial Commission, and the advisory committee on waste disposal representing the pulp and paper industry in the state, headed by H. A. Rothschild.

More mills will also be encouraged to install equipment to reclaim pulp fiber from white water waste, since pollution from this source also is to be avoided in the future. Tests during 1934 revealed that pollution in a degree critical to aquatic life was observed for only brief periods.

Paper Mill Payrolls Up

Reports compiled by the Wisconsin Industrial Commission on employment indicate that paper mill sections are holding up in splendid shape not only in the number of workers employed, but also in wage averages per employee. In the period from September to October 15, the latest available figures, payrolls increased 5.9 per cent. throughout the entire state, and employment dropped 0.9 per cent. There were increases in both employment and payrolls in nineteen cities, however. Employment for the last eight months is better than at any time since August, 1931.

Important Forestry Movement

A forestry move of importance is embodied in suggestions of the National Resources Board at Washington, D. C., in which it is recommended that Wisconsin's enabling act permitting the zoning of state areas be invoked to set aside fully one-third of the state's lands for forest purposes. This large area is classified by the board as "an area in which it appears desirable to encourage permanent retirement of a substantial part of the arable farming and develop constructive use of the land not to be in farms. The state planning board, in a report prepared under the direction of the U. S. Forest Service, suggested that 68,000 acres of farm lands be shifted to forestry. The Wisconsin planners also recommended that the federally owned forest lands be more than doubled, from 1,200,000 acres to 2,623,000 acres. It is further recommended that the state forests be increased from 331,000 acres to 1,600,000 acres, or five times the present acreage; and that the county forests be increased from 2,348,000 acres to 2,911,000 acres.

Safety Meetings Planned

Five meetings commencing February 4, 1935 are scheduled for employees of paper and pulp mills in Neenah and Menasha, Wis., to teach industrial safety. They will be conducted by L. J. McNamara, paper and pulp instructor of the state board of vocational education.

Subjects to be presented, and the speakers engaged are: "Present Accident Trends," H. D. Banta, assistant general superintendent, Hoberg Paper and Fibre Company, Green Bay, and chairman of the pulp and paper section of the National Safety Council; "Practical Safety and Job Security," A. Briggs, personnel director of the Kimberly-Clark Corporation at the Kimberly, Wis., mill; "The Tragedy of Carelessness," B. Salisbury, safety engineer, Hardware Mutual Casualty Company; "Functional Responsibility in a Safety Program," R. Zaumeyer, manager, Lakeview Division, Kimberly-Clark Corporation; "Relative Importance of Safety to Production, and the Danger of Over-Confidence," C. K. Boyer, manager, Interlake Division of Consolidated Water Power and Paper Company, Appleton, Wis.

News of the Industry

A claim of $40,315 for alleged overpayment of 1918 income tax has been filed with Federal Judge F. A. Geiger at Milwaukee by the Rhinelander Paper Company, Rhinelander, Wis. An error by a plant manager was cited by the company as the reason for the overpayment. Judge Geiger, after a hearing, has ordered both sides to file briefs within thirty days.

Salesmen of the Tuttle Press Company, Appleton, Wis., assembled from all parts of the country last week to attend a sales conference at the plant. The activities for 1934 were reviewed by L. R. Watson, sales manager, and the plans for 1935 were outlined. The salesmen were entertained at a Christmas party given by the Men's Club of the plant, and at a dinner at Valley Inn, Neenah, Wis., given by the company.

Dr. George Munro, research associate and instructor in optics at the Institute of Paper Chemistry, Appleton, Wis., has resigned to accept a position in the production department of the Champion Coated Paper Company, Hamilton, Ohio. He was a member of the Institute staff for about one year, and will assume his new duties February 1. Dr. Philip Nolan, who arrived last week from the University of California, will take over most of Dr. Munro's work. He will be research assistant and teacher of physics.

The Dells Paper and Pulp Company, Eau Claire, Wis., has called for payment January 1, 1935 a portion of its 6 per cent bonds, Series B, due July 1, 1941, 1942 and 1943. The total to be retired is $84,700, and the bonds are called, respectively, at 103½, 104 and 104¼.

Among the visitors at the Institute of Paper Chemistry, Appleton, Wis., last week were: James d'A. Clark, technical director of the Scott Paper Company, Chester, Pa., and J. W. Kieckhefer, president, and L. J. Meunier, general superintendent, of the Keickhefer Container Corporation, Delair, N. J.

Speed Reducing and General Gearing

The Palmer-Bee Company, manufacturers of elevating, conveying and power transmitting machinery, of Detroit, Mich., has just issued a new illustrated catalog of its products.

Among the numerous products illustrated and described are: All types of worm gear speed reducers, worm gear sub-bases, herringbone gear speed reducers and sub-bases, flexible couplings, etc.

A copy of this catalog may be obtained upon application.

Chicago Paper Market Shows Improvement

Continued Improvement In Practically All Grades of Paper Anticipated for Forthcoming Year —Persistent Demand for Fine Paper Experienced, Including Bonds and Ledgers—Outlook for Kraft Wrapping Paper Bright—Paper Board Market Irregular

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 24, 1934—The Chicago paper trade faces the new year with an optimistic feeling that 1935 will register a continued improvement in virtually all lines and grades of paper. While some lines are noting a slackening of business due to the approaching inventory period, more are viewing with satisfaction the fact that many buyers are totally disregarding the inventory period in the realization that depleted inventories must be replenished at once. This improvement in demand is noted in several fine paper lines in particular.

Bonds and ledgers found little change over last week with demand running seasonally better—right up to the last minute. Kraft jobbers found retail outlets still confronted with buying resistance on the part of the consumer public although the splendid holiday business was expected to completely deplete inventories and bring about spirited buying immediately after the first of the year. Newsprint representatives, looking toward long promised improvement in 1935, found the report of increased newspaper advertising lineage very gratifying. The chip board market continued slow although other boards were slightly more in demand. The waste paper market was basically sluggish, except for a few items.

Chaplain Addresses Paper Salesmen

The Rev. George Craig Stewart, chaplain of the Salesmen's Association of the Paper Industry, gave his annual Christmas message at the weekly luncheon held at the Hamilton Club on December 17. More than fifty salesmen, members of the Midwest Division, were in the appreciative audience. Dr. Stewart gave his usual splendid address, outlining what Christmas meant to the world and stressing the need of living up to the spirit set forth by the holiday season. At the close of his address Dr. Stewart was presented with a wardrobe trunk, the gift of the Midwest Division. The presentation was made by James H. Coy, Sr., veteran member of the association, who did a really fine job of conveying to Dr. Stewart the feelings of each individual member. Jim also led the group in some spirited singing which set the stage for the entire program. R. C. Johnson presided.

The Midwest Division of the association will hold its annual Christmas "open house" on December 27, the festivities again being staged on the top floor of the Brevoort Hotel. Ben Babbitt, of the Brown Company, is the major domo in charge of this event at which the salesmen are privileged to invite merchant customers and other guests. The program will get under way with a noon luncheon and will continue just as long as there is anyone left to enjoy the "open house" privileges which are many and unique.

Unemployment Insurance

Chicago paper executives, both through individual effort and association activity, are now doing a great deal of thinking about the problem of unemployment insurance, destined to be major legislation at Washington and at Springfield. A committee of merchants, headed by Samuel W. Reyburn of New York and with John McKinley of Marshall Field & Company as chairman, is making a thorough investigation of the subject and urging industry to sponsor forum meetings on January 7 to discuss the matter and to make recommendations. Many paper merchants and jobbers as well will undoubtedly take part in these meetings. An effort is being made to constructively criticise pending legislation in the light of practical business experience and to secure, if possible, unemployment insurance that will both do the job and not cripple business itself.

News of the Trade

A splendid and representative attendance of ground wood executives featured a December 20 meeting of the Ground Wood Paper Manufacturers held at the Drake Hotel in Chicago. The session was devoted to a discussion of major trade problems.

Bermingham & Prosser, Chicago paper merchants, are out, at an opportune time, with the latest edition of the "Friendly Adventurer" published occasionally by that company. Being issued just prior to Christmas, the latest edition contains a number of exceptionally fine and timely articles on the holiday season. Printed on 80 pound White High Finish Peacock enamel and 82 pound Peacock Enamel cover, the book contains only a small, but effective, amount of advertising. Seasonal silver and green make up the color combination.

The Chicago trade is regretting the death of one of its veteran members, Edward Topping, who died on December 16. Mr. Topping, a veteran of 35 years in the paper industry, was connected with the Pilcher-Hamilton-Daily Company, having been with that organization for all except a five-year period of service with the Whitaker Paper Company. Mr. Topping, who was 65 years old, died as the result of heart trouble. He leaves a wife and two daughters. Burial services were held on December 18.

Hawley Paper Co. Plan Approved

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 20, 1934—Reorganization of the financial structure of the Hawley Pulp and Paper company of Oregon City under the recently amended bankruptcy act was approved by Federal Judge John H. McNary. The plan was submitted with assent of the majority of the owners of securities of the company.

Records show the company has assets totalling $8,180,851. The financial structure has $2,127,500 in bonds outstanding, a note for $500,000, 20,000 shares of first preferred stock, 18,000 shares of second preferred stock and about 40,000 shares of common stock. Seventy-four per cent of the bondholders gave their assent to the plan; all of the note holders approved; 77 per cent of the first preferred stockholders, 93 per cent of the second preferred stockholders and 87 per cent of the common stockholders have assented.

The amended law provides for reorganization under court approval when two thirds of the creditors and stockholders approve the plan submitted.

Under the plan bonds will receive first payment from earnings, with a guaranteed payment of at least $200,000 a year. The plant is to be maintained in operating condition and $500,000 current net assets kept on hand at all times. The first preferred stockholders have waived interest and dividends until January.

Canadian Newsprint Ahead of Last Year

Production for 1934 Will Exceed 2,500,000 Ton Mark—Establishes Second Largest Yearly Volume Produced In Dominion—Newfoundland's Two Large Newsprint Mills Manufacture More Paper Than Ever—U. S. Production Increases Slightly

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 24, 1934—Earlier expectations that the Canadian newsprint production for 1934 would exceed the 2,500,000 ton mark are certain to be fulfilled, according to present indications. Last month Canadian mills turned out 240,869 tons, bringing the cumulative total for the eleven months up to 2,359,748 tons. This compares with 1,841,700 tons in the corresponding period of 1933 and with the previous all-time record of 2,495,628 tons established in 1929. Anticipations are that production during the current month will be more than sufficient to shove the year's total over the 2,500,000 ton figure and thus establish the second largest yearly volume of newsprint ever produced in this country.

The increase in production, it is pointed out, does not fully reflect an increase in consumption, particularly in the United States market, which consumes well over 80 per cent. of the total Canadian output. Advance in advertising lineage plus an increase in reader interest, have played the most important part in the better demand, but some of the gain must be attributed to the American publishers stocking with newsprint in anticipation of the announced price increase after the turn of the year. It is difficult to determine the extent of the surplus stock, but a reasonable estimate would be not far short of 100,000 tons, most of which has come from Canadian mills. The American mills have not lost a great deal of business to the Canadian producers, though the increase in production in that country has not been so great as in the Dominion. Last month the American output totalled 74,933 tons, bringing the total for the year to date up to 877,501 tons. This was in contrast with 865,479 tons for the same period in the previous year. This is a small increase, but compared with other years shows that the declining trend of production in the States has been checked only temporarily.

Despite the fact that the Canadian mills have turned out a larger tonnage this year than ever before, with the exception of 1929, the combined production of United States and Canadian mills will not be as good for 1934 as reported in several other years. To date cumulative production is less than for the corresponding periods of 1928, 1929 and 1930. This reflects the contraction in American output. The two countries, it is said, would produce around 3,500,000 tons more than in 1933.

Newfoundland Sets Newsprint Record

According to word from Newfoundland that country's two newsprint mills manufactured more newsprint paper in the eleven months ended November, 1934, than in any other similar period on record. It is stated that between January and November this year, the island mills fabricated 291,725 tons, or 19 per cent. more than in 1933 and comparing with the previous high record of 270,469 tons made in 1931. There is no doubt that for the full year Newfoundland's newsprint production will exceed 300,000 tons for the first time on record. Credit for this unusual performance goes to the International mill at Corner Brook and the Anglo-Newfoundland plant at Grand Falls.

Transportation to Order

Recently the Abitibi Power and Paper Company at Iroquois Falls decided it required a special truck for transport of supplies and materials in the rough country of Northern Ontario. This had to be of large capacity, able to run on tracks backward as fast as forward, and of course economical. A motor car company in Ontario built just what was wanted and it headed for the north country the other day under its own power, strangest motor vehicle seen on the roads in many a day. The railmobile, as you may call it, has a 130 h.p. truck engine and a chassis like a flat car built of girder steel. It has a special truck transmission and tests showed it capable of 35 miles an hour forward or reverse. It will handle loads of ten tons or more.

Notes and Jottings of the Trade

A number of paper manufacturers in the Niagara District are interested in Spun Rock Wools, a new company that has been formed at Thorold and which has commenced operations in the manufacture of rock wool, an insulating material. The president is Charles F. Buss, general superintendent of Provincial Paper, Ltd., with Paul E. Buss as vice-president. T. A. Weldon, vice-president of Provincial, is also a vice-president of the new concern.

Walter R. McKibbon, formerly woods manager of the Sault Division of the Abitibi Power and Paper Company, died at his home in Sault Ste. Marie in his 66th year. He had been ill only a short time. For 32 years Mr. McKibbon was closely identified with the pulp and paper industry in the Sault, working with the Lake Superior Paper Company, Spanish River Power and Paper Company, and the Abitibi company. He was superintendent of woods operations under the Lake Superior Company, and woods manager of the other firms. He retired from his post this year.

The Fort William and District Municipal League is sponsoring an unemployment relief measure in seeking from the Ontario Government permission for settlers to cut pulpwood and ties from Crown lands in this district this winter. The Hon. R. J. Manion, Minister of Railways and Canals, will be requested by the League to assist the scheme by having the railway systems allot a portion of their tie requirements to the settlers.

Advices from Fort William, Ont., say that considerable employment for district settlers will be needed if they are to maintain themselves without distress during the winter. Prompt co-operation on the pulpwood and tie cutting proposal would relieve the situation. The department of lands and forests will be asked to grant permits for the cutting on Crown lands under proper Government supervision, while Dr. Manion will be urged to aid in finding a market for the wood.

Walter Woodward, of Fort Frances, who was recently appointed inspector of timber camps, states that about 1,000 men are engaged in logging in the district east of Fort Frances, Ont. More than half the men are employed by the Shevlin-Clark Company and other border lumber companies in woods activities, the remainder being at work in pulpwood and tie camps. The number at work in the pulpwood line is considerably more than a year ago and indications are that throughout the district camps will be conducted on a much larger scale than has been the case for a number of years.

Demand for Paper Persistent In Philadephia

Local Paper Market Strengthens Perceptibly and Adds Materially to Its Stability—Both Fine and Coarse Paper Divisions Experience Stimulus Unknown for Several Years Past—Inventory Taking Indicates Business 25 Per Cent. Better

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 24, 1934—The Philadelphia paper market strengthened perceptibly during this month about to close and added materially to its stability. In the Christmas trade, both divisions—the fine and coarse—have experienced a stimulus unknown for some few years. Just at this time, the paper houses are in the throes of inventory taking, and from a very reliable source comes the good news that business is 25 per cent better than last year.

Paper and Cordage Christmas Party

Christmas happiness for deserving children, recruited from the ranks of the Salvation Army, and planned by the Entertainment Committee of The Philadelphia Paper and Cordage Association, through its chairman, Leslie C. Bartlett, came back in like measure to the members of the association and their guests, numbering two hundred, at its annual Christmas party on Wednesday, December 19, in the Rose Room of the Adelphia Hotel.

Fifty-six little youngsters, under the watchful eye of Brigadier Jennie R. Ward, superintendent of Salvation Army Settlement House Day Nursery, 222 South Third street, assisted by Captain Harriet Godden, trekked to the Adelphia Hotel. They filed into the Rose Room, and Santa's approach was heralded by gay ringing of sleigh bells accompanied by the singing of Christmas Carols under the direction of C. F. Koenig and E. L. Richards, of the Buffalo Envelope Company, 401 North Broad street.

Encircling the room were Christmas greens intermingled with holly and mistletoe, and Santa, perched in a sizable chimney alongside of a gorgeously arrayed Christmas tree, distributed to each little guest—after having partaken of turkey dinner and all the trimmin's—a nice warm sweater, toys of all descriptions, dolls, apples, books and candy.

The Rev. Croswell McBee, Rector of Old St. David's, Radnor, and chaplain of the association pronounced the Benediction, and vividly depicted the story of the Wise Men and their significance with the birth of the Christ Child.

Officers Elected for Ensuing Term

At the post-prandial exercises, Retiring President Hooper announced the election of the following as a result of the balloting by the Nominating Committee: President, Harry S. Platt, Denny Tag Company; Vice-President, William Parkes, Garrett-Buchanan Company; Treasurer, Frederick I. Brower, Atlantic Gummed Paper Corporation; Secretary, Vincent A. Dirvin, Paper Manufacturers, Inc. Directors elected were George K. Hooper, Amos M. Coath, Leslie C. Bartlett, John R. Howarth, E. L. Richards and James Andrews.

Mr. Hooper addressed the gathering and in part said: "I would like to ask the ladies and gentlemen to relax and enjoy the entertainment the children have given us. Just let us be as one big family celebrating this eventful day, made possible by the members of this association." Looking back, in retrospect, Mr. Hooper said: "Just about two years ago, the Philadelphia Paper and Cordage Association, which had been in existence about nine years, dwindled to a little group of four members, and went into somnolence until, as I said, two years ago when it was revived, and now we boast of a membership of eighty. In this membership we are proud to say that the representative paper and cordage houses are not only members but take an active part in all the activities that are designed to help the other fellow, which is the counterpart of this associaion. We are not only proud of the paper and twine houses in our membership but also sources of supply, manufacturers of cordage and paper products who have also joined. We have present with us today men who have come from distant points to be with us on this occasion—from New England, middle west and far into the south. And in spite of the fact that a number of our members are confined to their beds with sickness, we have the grandest gathering that it has been our privilege to enjoy."

Mr. Hooper then presented Leslie C. Bartlett, chairman of the Entertainment Committee, and said that Mr. Bartlett, who is a charter member of the association, got out of a sick bed to have personal supervision of the decorations and all those things attendant on the success of the party.

Mrs. Richard B. P. Forrest, of Lansdowne, a celebrated elocutionist, in her inimitable way recited "The House With Nobody In It," and other very appropriate Christmas poems.

Notably present among the guests was Mrs. Doris Lewis, secretary of the Paper Distributing Code, through whose courtesy and arduous work, Mr. Hooper said, many entanglements of the Code were clarified.

As an added attraction, Alice Young, who conducts a dancing studio in the Adelphia Hotel with a branch at Collingswood, contributed to the entertainment by presenting her advanced pupils in costume in a wonderful interpretation of herpsichorean art.

The association is indebted to Mrs. Walter Clark, wife of the chairman of the Finance Committee of the association, for oranges; Amos Coath for the sweaters; Leslie C. Bartlett for dolls, automobiles and miscellaneous toys, and George K. Hooper for the candy.

Garrett-Buchanan Celebrates

As we go to press, the Garrett-Buchanan Company has suspended business for the day, and banded together all its employees for a glorious celebration of Christmas in their establishment. Gathered around a tinsel-ladened tree and amid decorations that would do justice to processional decorators, executives—forgetting to be self-conscious—are toting gayly covered packages, tied with bright red ribbons, topped with holly and distributing them among the employees.

Extensive Wood Operations in Maine

MILLINOCKET, Maine, December 24, 1934—About 4500 men are now employed in the most extensive woods operations that the Great Northern Paper Company has undertaken in recent years. They are at present in camps widely scattered over the State and are in addition to the large number of men regularly employed in its three paper mills at Millinocket, East Millinocket and Madison.

Eleven hundred horses, owned by the Great Northern and 400 other horses owned by contractors, 1500 horses in all, will be used in these extensive operations.

Boston Paper Market Continues Fairly Active

Demand for Various Grades of Fine Paper Somewhat Irregular—Holiday Rush for Fancy Wrapping Paper Well Sustained—Box Board Section Comparatively Quiet—Paper Stock Remains Listless, With Prices of Several Grades Easier

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 24, 1934—The Boston paper market continued to average fair during the last week. The Christmas rush for fancy wrapping paper kept up to a certain extent. Comments from the fine paper trade included "slowing down some," "not so bad on the whole," "good" and "improving." Box board remained comparatively quiet, with box manufacturers keeping their inventories down. Some orders for delivery after the first of the year have been received.

The paper stock market remained generally quiet, although in some quarters the opinion is expressed that there is more activity, with a number of grades moving well. Dealers do not look on December of any year as a very heavy month, but at one office, at least, it is stated that more business was received than anticipated. There is, however, a big surplus of mixed papers and old newspapers and it is felt that no improvement will take place until the surplus is disposed of.

Mill inventories are low, with the consensus of opinion that more buying would develop if uncontrolled by NRA regulations. It is reported that among NRA officials there is a difference of opinion in regard to continuing price control. Some grades of old papers have declined in price, due to the fact that mills have not been buying in large quantities and accumulations have been piling up.

No. 1 books, heavy, have gone down to .70 @ .80 from .85 @ .90; No. 1 books, light, to .55 @ .65 from .65 @ .75; No. 1 kraft to .85 @ .90, and overissue news to .45 @ .50 from .50 @ .55. In new domestic rags, fancy and washable shirt cuttings showed declines of about a half-cent. Under old domestic rags, there was more demand for No. 1 and No. 2 roofing stock, with No. 1 grade advancing to .75 @ .80 from .70 @ .75 and No. 2 to .70 @ .75 from .65 @ .70. Grades of bagging and foreign rags remained unchanged in price.

News of the Trade

John Carter & Co., Inc., are sampling a new line of Leader Ledger which they are to carry in useable sizes in white, buff and blue.

The December issue of The John Carter Sampleteer, a publication edited by Charles H. Barr, contains various observations, instructive and witty and all interesting. The Sampleteer notes that the company is just completing its 74th year as paper merchants. "From a small beginning in Spring Lane (with deliveries by wheel-barrow to Boston users of paper) the company has made steady progress with occasional removals to larger quarters as necessitated by increasing business, and now occupies a fine warehouse constructed for its use at 597 Atlantic avenue, Boston, with a branch warehouse at Hartford serving Connecticut and Western Massachusetts, and mtaintains offices with resident salesmen in Providence, New Haven, Springfield, Lewiston, Me., and Concord, N. H.

"The record of these years brings us satisfaction in the fact that many of the earlier accounts are continued in increasing volume by the sons and grandsons of the original customers. But, not alone in the past do we find satisfaction for we have added many new accounts these more recent years to whom we have endeavored to render the same quality of service which has made the name of John Carter & Company, synonymous with satisfactory merchandise and understanding attention to each customer's requirements. In our management and personnel while we have retained the valuable services of the J. C. men and women whose loyalty through the years has made our success possible, we are steadily building a strong organization of young men in our sales and sales service departments." Attached to the inside back cover is a pocket containing samples.

A meeting of the Wrapping Paper Division of the New England Paper Merchants Association was held at the Boston Chamber of Commerce Tuesday with Robert M. Stone, vice-president in charge of that division, presiding. Routine matters were discussed.

A number of Christmas parties were held in the trade. The New England office of the American Writing Paper Company entertained some 80 guests Friday afternoon.

The Brown Company had an office party, with joke presents as a feature.

Stimson & Co., Inc., gave a party with a Christmas tree and presents for the entire staff. Ice cream and cake and hot coffee were served. Frank L. Jones, treasurer of the company, was master of ceremonies.

On and after December 31, the office of the Brown Company will be at 143 Lincoln street, where that of the Onco Division of the concern is located. The removal is to be made for the convenience of both offices.

Letters have been received from F. Bendel Tracy, president of the Fort Hill Paper Company, from Miami, Fla., saying that he is enjoying himself.

Edward Savage Crocker Dead

Edward Savage Crocker, age 78, at one time a member of the firm of Crocker, Burbank & Co., paper manufacturers, Fitchburg, Mass., died December 17 at his Pasadena (Cal.) residence. Mr. Crocker went to Pasadena to live after his retirement from business in March, 1909.

He was born in Lawrence, Mass., May 15, 1856, the son of Mr. and Mrs. Samuel Emmons Crocker. He came to Fitchburg with his parents in 1859. Mr. Crocker attended Worcester Academy, where he was the first curve ball pitcher on the baseball team. After being graduated from Worcester Academy in 1877 he entered Brown University, where he studied a year before leaving to go into the paper manufacturing business.

He is survived by his widow, Mrs. Adelaide Putnam Crocker, a native of Fitchburg; a sister, Mrs. Cyrus M. Vanslych, of Providence; two brothers, George H. Crocker, of Cambridge, and Emmons Crocker, of Fitchburg, and several nephews and nieces.

G. H. Mead Retires as Chairman

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 26, 1934—George H. Mead of the G. H. Mead Company, Dayton, Ohio, retires as chairman of the NRA Industrial Advisory Board effective January 1 and will be succeeded by R. D. Stuart of the Quaker Oats Company. Mr. Mead has been chairman of the Board for some months. He will remain on the Board.

PAPER TRADE JOURNAL EDITION

MACHINE ROOM NEWS

WHAT THE MILLS ARE DOING TO MAKE BETTER PAPER AND MORE OF IT — AT LOWER COST.

BIRD MACHINE COMPANY • SOUTH WALPOLE, MASS.

High Percentage of Paper Mill Equipment Considered Obsolete

Recent investigations have brought out two important facts:

1. That modern machinery is so much better than machinery that has been in operation for five, ten or even fifteen years that no mill can afford to run the obsolete equipment.
2. That those mills that have adopted a modernization program are not only quickly paying for their new equipment out of the savings but are putting themselves far ahead of competition from the standpoint of both quality and cost.

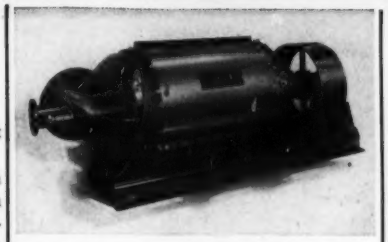
"Used To Be Afraid to Open Morning Mail," Confesses Mill President

"We got so many dirt complaints I used to dread looking at the mail," says one prominent mill head, "but since we put in those Bird Centrifiners we haven't had a single 'kick' about the cleanness of our paper."

This is backed up by reports from many mills of sharp reductions in dirt count and consequent savings in rejects and throwouts as well as reduced sorting expense. For full information on the new Bird Centrifiner get in touch with Bird Machine Company.

25 Tons of Good, Clean Pulp Daily Average with Bird Pulp Screens

A number of complete installations of Bird Slotted-Plate Centrifugal Pulp Screens are piling up performance facts of considerable significance to pulp producers everywhere. Big capacity, uniformly clean stock, remarkable flexibility and compactness are some of the things brought out.



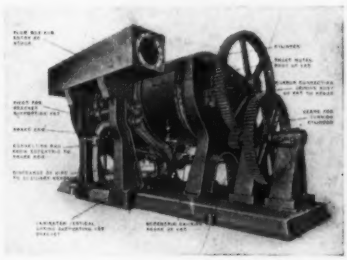
Today, lowest pulp screening cost per ton means the Bird Pulp Screen.

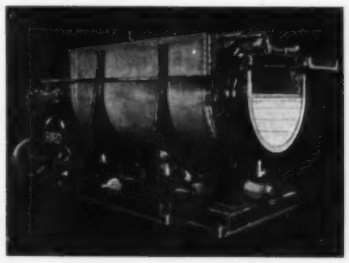
Felts Changed Every Day Now Run Full Week

In one mill where the running conditions are unusually severe it was the custom to stop every 24 hours, take the felt off the machine and put another one on, washing and replacing them on alternate days.

Then they installed a Vickery Felt Conditioner. Now the machine runs a full week without a stop for a felt wash-up.

Other mills bothered by frequent and expensive shut-downs for felt washings will find Vickery Conditioners quickly pay for themselves.





LOWEST SCREENING COST PER TON *Means* MODERN BIRD SCREENS

Pictured above is the Bird Screen of twenty years ago and the Bird Screen of today. The modern Bird Screen is built to meet today's quality, production and cost requirements as the "old timer" met those of its day.

From the first the principles of Bird Screen operation have been right! That is why over three-quarters of all the paper made on this Continent passes through Bird Screens.

For finest performance and lowest screening cost per ton you need 1935 Model Bird Screens. Let screening headquarters show you just what new Bird Screens may mean to your mill. Get in touch with Bird Machine Company at South Walpole or Chicago.

The BIRD SCREEN

6239

Packaging Show To Be Held at Chicago

Linking the past, present and future of packaging, packing and shipping in a program of exhibits, addresses by outstanding experts and design and production clinics, initial arrangements for the fifth Annual Packaging Exposition and Conference of the American Management Association have been completed. Preliminary plans for the exposition, which will be held at the Palmer House in Chicago, March 5 to 8 inclusive, have been announced by Alvin E. Dodd, executive vice-president of the American Management Association.

The program, which will be marked by many new ideas in the way of events and approaches to common packaging problems, will be divided into four special "days." March 5 will be known as Progress Day, with the program given over to addresses summing up advances made in the field of packaging up to the present time. The second day of the exposition and conference will be known as Marketing Day, with attention of speakers and their auditors focussed on the use of well-designed packages in the sale of all types of products.

Production, vitally important element in the packaging picture, will come in for special attention on Production Day, March 7. The closing day of the exposition, Friday, March 8, will be known as Industries Day. Speakers will dramatize the utilization of modern packaging in the various industries, these including foods, textiles, cosmetics, candy, tobacco, and industrial unit packing.

Important items included in the common problems incident to package design, production and use will be covered in conference topics. One of the items will be that of printing. This important subject will be covered in a Marketing Day address, titled "Typography and the Package," to be delivered by Gilbert Farrar, outstanding artist and designer in type, who is typographic counsellor for the American Type Founders Sales Corporation and director of typography for the Conde Nast Publications. Mr. Farrar is the designer of the new certificates which will be given this year to winners of the American Management Association Packaging Awards, and the Irwin D. Wolf Trophy, presented in connection with the packaging exposition.

The influence of the consumer—the actual buyer of goods over the counter—on package design will be dramatized in a Production Day address by Leo Nejelski, advertising manager of Swift & Co., Chicago. His subject will be "The Consumer as a Package Designer." One of the speakers on Marketing Day will be C. B. Larrabee, managing editor of *Printers Ink,* who will have as his subject "Before Designing the New Package."

Other speakers at the exposition and conference will be Dr. L. V. Burton, editor of *Food Industries,* who will sum up the Production Day program in a special address, and D. E. A. Charlton, editor of *Modern Packaging,* who will summarize the Progress Day program. The keynote address opening the Production Day program will be given by Francis Chilson of New York, whose tentative subject is "Production Is Still Done in the Factory."

Packing and Shipping

A departure in the exposition and conference program in March will be a special Conference and Clinic on Packing and Shipping, which will be held through the afternoon of Thursday, March 7. This event will bring sharply to the forefront the problems of packing superintendents, packing engineers, traffic men, freight and transport executives; insurance men and sales and general business executives interested in packing and shipping progress.

One of the speakers at the Packing and Shipping Conference and Clinic will be Don L. Quinn, president of the Don L. Quinn Company, Chicago, whose subject will be "Corrugated Shipping Containers; What Makes for High Quality in Them; and How to Police That Quality." Other topics coming up for discussion at the packing and shipping session will include "The Problem of Concealed Damage," "New Technique in Cabinet Packing" and "Export and Domestic Packing."

Old and New

Plans are being made for a special program event at the conference which will picture in a graphic manner the advances made in packaging in the last ten or fifteen years. In this event the "before and after" touch will be given, with packages of today and their predecessors of the mauve decade or earlier presented in large-scale proportions. Producers, designers and users of noteworthy packages which have undergone radical change in form will be invited to exhibit their containers at this event.

Conceiving the exposition and conference clinic as an event which should guide and help companies with redesign problems or companies seeking advice and assistance in approaching the re-design problem, those in charge of program are proceeding on that basis. The clinic at the forthcoming exposition and conference will not be concerned primarily with packages already in daily sales service, but will seek out and dramatize existing opportunities for improvements. Present-day packages which should be re-designed will be shown, with suggestions for changes, if their users will consent to sponsor their appearance as actors in the clinic show.

Sees Great Opportunity

In announcing preliminary plans for the Chicago packaging exposition, Mr. Dodd stressed the opportunity it offers to sales and other executives interested in finding new markets for their products and in extending their present markets.

"The modern package," said Mr. Dodd, "is a necessary sales tool. It helps the sales manager meet competition and to get his products widely distributed among many users. With improvement definitely noted in the business outlook, new emphasis must be laid on the need for aggressive selling. The modern package is a necessity in such selling. Those who attend the packaging exposition and conference in Chicago will find many new facts and new ideas to help them in their sales planning. The exposition and conference will hold real interest for all types of executives who are seeking ways and methods to bring about more active buying of actually needed products."

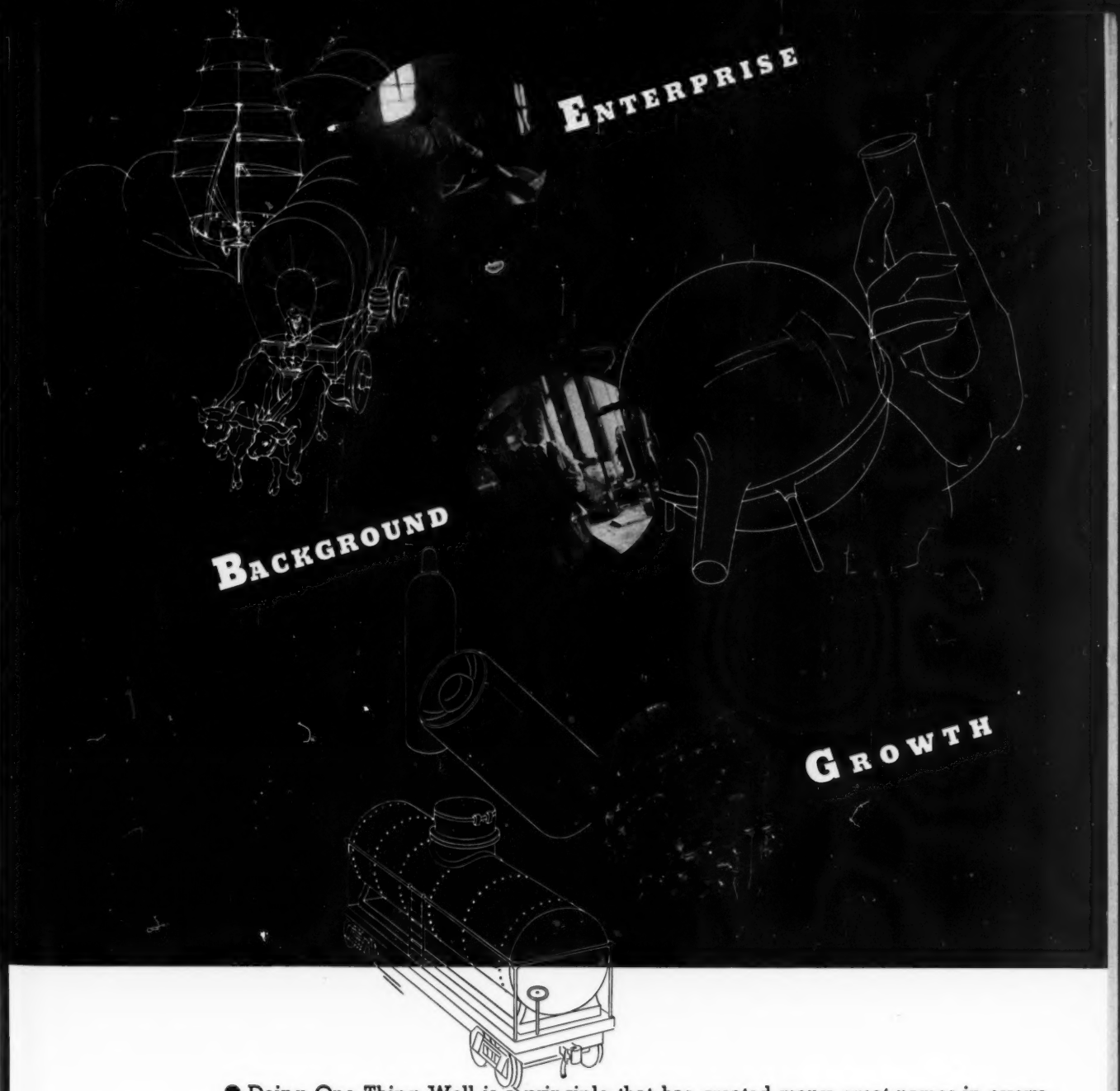
Georgia Paper & Specialty Co. Formed

[FROM OUR REGULAR CORRESPONDENT]

SAVANNAH, Ga., December 24, 1934—Morris Blumberg, Lipman N. Blumberg and A. L. Karp petitioned in Superior Court last week to be incorporated as the Georgia Paper and Specialty Company with authority to deal in general merchandise.

The petitioners asked permission to have minimum capital stock of $7,500 with authority to increase it to as much as $50,000.

The law firm of Hester & Clark filed the petition.



● Doing One Thing Well is a principle that has created many great names in every art and trade and industry. The name EBG, outstanding among producers of Liquid Chlorine today, was built by Doing One Thing Well, and nowhere has the soundness of that principle been better illustrated than in EBG Enterprise, Background and Growth. In Enterprise EBG is the pioneer—the first in the country. In Background EBG is the oldest—the most experienced. And EBG has more users today than ever before—its Growth is the reward of service well rendered. Here are sound reasons why EBG is worthy of your highest confidence.

ELECTRO BLEACHING GAS COMPANY
Main Office: 9 East 41st Street, New York, N. Y.
Plant: Niagara Falls, N. Y.

EBG Liquid Chlorine

FIRST IN THE COUNTRY

RECORD DECEMBER NEWSPRINT OUTPUT FORESEEN

(Continued from page 11)

Paper Company; Brig.-Gen. J. B. White, vice-president, and M. W. Hurlbutt; Frank Clarke, vice-president of the Anglo-Canadian Pulp and Paper Mills, Ltd., and R. A. McGinnis, general manager; W. A. Cesar, of the E. B. Eddy Company; Noah Timmins, N. Cameron and A. White of the St. Lawrence Paper Company; R. Steele, of the Brompton Pulp Company; A. McLaren and Fred Kenny, of the James McLaren Company, Ltd.; C. J. Belnap, of the Consolidated Paper Mills; Col. John Price, of Price Brothers; K. S. McLachlan and C. G. Power, of Fraser Brothers and Co.; A. S. McNicoll and Joseph Fox, of the Lake St. John Pulp and Paper Company; Timothy and George Donohue, of the Murray Bay Paper Company; J. A. Wilson, of the Abitibi Power and Paper Company; Robert Kernan, of the Donnacona Paper Company; J. Vining, of the Merrimack Manufacturing Association; Gordon Fleck, J. R. Booth Company; M. Martin, Ontario Paper Company, and H. H. McArthur, News Pulp and Paper Company.

Seldom Met Such Men Says Premier

Premier Taschereau, speaking at a banquet in Montreal a day or two ago, made a reference to the newsprint industry. He said: "The men who are called captains of industry here, who should work together, are not true to their kind and to what other people expect of them. In the newsprint business the trouble is not without but within, and I have no hesitation in saying tonight that I very seldom met a group of men who—I don't want to say are disloyal to each other—but I say this, who do not co-operate better and who do not co-operate among themselves as they should."

The Premier denied that there was any attempt to regulate the price of paper or interfere with existing contracts, but insisted that the Government was not going to allow their forests to be depleted at a loss for the benefit of people of the United States. He said that they had been told they would get no favors in stumpage dues or in permission to cut undersized trees unless they produced paper at a price that would give a return to their bondholders and shareholders, and in this declaration he had the most complete co-operation of the Government of Ontario. Finally, Mr. Taschereau appealed to everyone to put aside that narrow sectionalism that hurt trade and industry.

Lumber Industry Consolidates Upturn

At the annual meeting of the Montreal Lumber Association here, the president, Claude Villiers, announced that the lumber industry has already commenced the return to more prosperous conditions, the low mark of the depression having occurred in February of last year, and a remarkable improvement having been noticeable since then, with a steady demand for export, and mill stocks at as low a point as they have been for many years.

"The illuminating point in the lumber review for 1934 is the almost certain possibility of an advance in lumber prices," Mr. Villiers pointed out. "There is a substantial demand for lumber for purposes of repair and alterations. The number of contracts due mainly to governmental work is well ahead of the past few years. For the ten months' period the value of contracts awarded this year is $109,000,000 as compared with $78,000,000 for the same period of 1933. Another encouraging possibility is the policy of the United States to lower tariffs. If the $4 rate on lumber is eliminated or reduced, the outlet of lumber through that channel will be increased appreciably."

Speaking of the large export trade to the United Kingdom, he said consumption in that country was being well maintained. The imports of sawn softwood lumber from Canada into the United Kingdom for the first ten months of 1934 show a tremendous increase as compared with the corresponding period of 1933, nearly double in fact. Much of this increase is from British Columbia, but eastern Canada has contributed substantially. Dressed softwood lumber has also increased heavily, and probably most of this is from British Columbia, the report indicates. During this period sawn hardwood lumber from Canada has increased to 68 million feet as compared with 45 million in 1933. This is all provided by eastern Canada and is mostly birch with maple and basswood next in importance. Shipments of graded birch through Montreal have shown a steady upward trend of late, and this season it is probably 25 per cent more than in 1933. The bulk of the 68 million however consisted of ungraded birch shipped mostly on tramp steamers from the St. Lawrence and the lower ports of eastern Canada.

Indianapolis Reports Prospects Better

[FROM OUR REGULAR CORRESPONDENT]

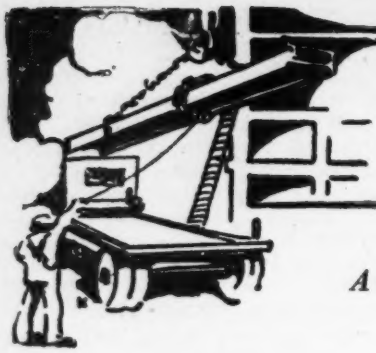
INDIANAPOLIS, Ind., December 24, 1934—With prices in practically all lines firm and showing indications of future increases and with business volume for this period considerably ahead of last year, the paper trade ends the year in a much better position than it has had for the last four or five. Much of the uncertainty of the future seems to have been eliminated, this being particularly noticeable during the last quarter.

December business in most lines has continued good. The strictly holiday trade has been much better than a year ago. Local jobbers and factory representatives report contracts being signed in better shape than the same month a year ago. In some instances there has been some hesitancy on the part of mills to enter into long term contracts because of the possibility of increased prices.

The fine paper market, books and ledgers and all rag content papers reflect the upward trend. Orders now are on file in good volume for delivery after inventory. It seems barely possible that stocks with retailers and jobbers both in this territory will be a trifle heavier next year than they have been held. Kraft is in a good position and will continue in demand, according to local predictions. Newsprint continues in demand. This week sees the end of the holiday business for newsprint which has been very heavy. This was particularly noticeable in the smaller towns and cities where special sections were seen in most papers two and three times a week.

Demand for wrapping papers and bags last week was very large. Much of this was caused by seasonal influences, which were strong this year, but many sales had no seasonal influence whatever, being merely the reflection of a general businss upturn. Container men are delighted with past business and the future outlook. Indiana container factories continue to work on schedule and report well filled order files. In most instances only the Christmas Day will be celebrated, today the factories are operating. The shutdown for inventory will be made as brief as possible.

Waste paper men are more encouraged. There is a slight increase reported in mill demand but paying prices continue unsatisfactory.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Dallas, Tex.—The Pollock Paper and Box Company, South Lamar and Alma streets, manufacturer of folding paper boxes and containers, has filed plans for new addition to plant, to be one-story, 150 x 250 feet, estimated to cost about $85,000, including equipment. New unit will provide for large increase in present capacity. General contract has been let to the Cedric Burgher Construction Company, Dallas, and work will soon begin. Samuel Biederman and R. O. Jameson are architect and engineer, respectively, both Dallas.

Elkton, Md.—The Jessup & Moore Company has been chartered under Maryland laws to take over and operate the company of same name, with local mill and branch plant at Wilmington, Del.

Indianapolis, Ind.—The Central Ohio Paper Company, South Pennsylvania street, has arranged for long-term lease of space in building at 225-27 South Meridian street, totaling about 25,000 square feet of floor area, and will remodel and improve at once for new local storage and distributing plant, and company headquarters. Facilities of company for writing and book papers and other paper stocks will be increased at new location, which will be occupied in January. J. Landon Davis is vice-president.

West Point, Va.—The Albemarle-Chesapeake Company, Inc., manufacturer of kraft paper products, kraft liner boards, etc., and the Chesapeake Corporation, affiliated organization, manufacturer of kindred paper goods, have work in progress on an expansion and improvement program at mills, including construction of new additions for enlarged output. Work is scheduled for completion next spring and will represent a large investment. New units will be of thoroughly modernized type and will all be equipped with sprinkler systems to be furnished by the Century Sprinkler Corporation, 901 East Broad street, Richmond, Va.

Trenton, N. J.—The C. G. Winans Company, 33 Tucker street, paper products, has approved plans for new two-story addition to storage and distributing plant, 26 x 100 feet, estimated to cost about $24,000, with equipment. General contract has been let to Fowler & Thorne, Trenton, and superstructure will be placed under way at once.

Niagara Falls, N. Y.—The old paper mill of the Cliff Paper Company, which discontinued operations several months ago, is being demolished, and the site, located on the Gorge bank, will be used for other purposes in the future. The plant has recently been dismantled.

Atlanta, Ga.—The Georgia Paper Stock Company, 239 Grant street, S.E., is planning early rebuilding of portion of three-story storage and distributing plant, recently damaged by fire. An official estimate of loss has not been announced.

St. Paul, Minn.—The Kaplan Paper Box Company, 126 South Wabasha avenue, manufacturer of folding and other paper boxes and containers, has awarded general contract to the Ramsey Building Corporation, 975 Fairmount avenue, for new addition to plant, recently referred to in these columns. It will be 25 x 100 feet, located on adjoining site, estimated to cost approximately $24,000, with equipment. Superstructure will soon be placed under way. George Kaplan is president and general manager.

Wellston, Mo.—The Small Manufacturing Company, Ferguson avenue, manufacturer of cardboard and paper boxes and containers, etc., is planning early rebuilding of portion of plant, recently destroyed by fire. Loss reported at close to $16,000, including equipment.

Scottsville, N. Y.—The Genesee Paper Mills, Inc., has filed notice of company dissolution under state laws. The local mill of the company, manufacturing boxboard specialties, test liners, etc., has been idle for some time.

New York, N. Y.—The AAAAAA Ace Paper Box Corporation has been organized with a capital of 100 shares of stock, no par value, to manufacture and deal in paper boxes and containers. New company will succeed to the AAAAAA Ace Box Company, with local plant and headquarters at 34 West 17th street.

Shelby, Ohio—The Shelby Salesbook Company is running on a high production schedule at its paper converting plant, giving employment to regular working force in different departments. For the third consecutive year, the company has authorized a bonus to employes on an hourly working basis, totaling 4 per cent of their wages for the year.

Chicago, Ill.—The Morgan Paper Company, waste paper stocks, has leased the entire two-story building at 21st and Morgan streets, totaling about 30,000 square feet floor space, and will occupy at once for new storage and distributing plant. Improvements will be made in the building.

Laurel, Miss.—The Masonite Corporation, manufacturer of insulating board products, is running on an increased production schedule, with regular working quota in different divisions of the mill. The company reports an advance of 60 per cent in business during October and November, as compared with the corresponding months of last year.

Cornwall, Ont.—The Howard Smith Paper Mills, Ltd., Montreal, Que., is reported planning new addition to mill at Cornwall, primarily for storage and distribution. It is estimated to cost over $25,000, with equipment.

New Companies

New York, N. Y.—Michael Carillo, Inc., has been or-

ganized with capital of $15,000, to deal in paper goods. Michael Carillo, 111 East 131st street, is principal incorporator and head.

Chicago, Ill.—The Desplaines Waste Paper Company, Inc., 736 West Tilden street, has been incorporated with capital of 50 shares of stock, no par value, to deal in waste paper stocks. David Edelson is the principal incorporator.

Appleton, Wis.—A. E. Broughton & Co., Inc., has been incorporated by A. E. Broughton and Elmer R. Honkamp, both of Appleton, to manufacture and deal in paper and pulp machinery and parts.

New York, N. Y.—The Alpine Waste Corporation has been organized by Nicholas Dodato, 437 East 35th street, Brooklyn, and associates, to deal in waste paper stocks.

New York, N. Y.—The Dexter Folder Company has been incorporated with capital stock of $2,139,300 preferred stock, and 43,962 shares common stock, no par value, to manufacture paper folding machines and kindred equipment. The company represents a consolidation of the Dexter Folder Company and the Cleveland Folding Machine Company, Inc.

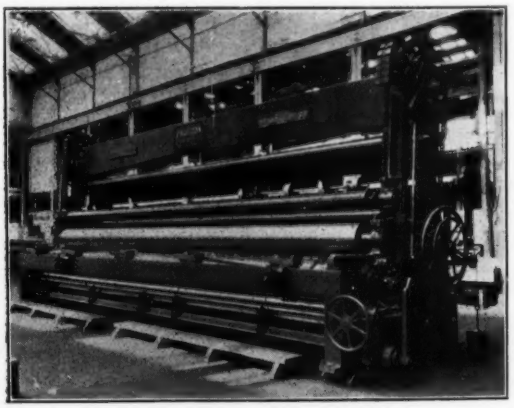
Cameron Builds World's Largest Winder

Paper manufacturers especially will be interested in the news that the World's largest and fastest winder has been built, tested and shipped to Edward Lloyd Limited, Sittingbourne, Kent, England.

This huge modern winder was built in Canada at the plant of the Cameron Machine Company of Canada, Limited, a subsidiary of the Cameron Machine Company of Brooklyn, New York. The preferential tariff rates between Canada and England made it advisable to build the machine in Canada instead of at the shops of the parent company in the United States.

The new high speed newsprint machine, the largest in the world, now being built for Edward Lloyd Limited, will have a wire width of 320 inches and will run at 1400 f.p.m. As the paper machine runs continuously from week end to week end, producing a continuous web at the speed mentioned, it is essential that the winder, which trims the edges of this wide sheet, slits it and winds it into rolls for delivery to newspaper pressrooms, should run at speeds much in excess of the paper making machine in order to rewind all the paper made and still have sufficient time for rest periods during which rolls are changed.

This super winder is therefore designed to run at speeds up to 3000 f.p.m. It is not always necessary to utilize this high speed, however, as time and labor saving features for setting cutters and changing shafts, make roll changing a comparatively simple matter. In any case, this machine is capable of keeping well ahead of the paper machine at any paper making speed, slitting and winding the oncoming web at speeds not much short of 35 miles per hour.



WORLD'S LARGEST WINDER

The machine weighs approximately 80,000 lbs. The finished rolls of paper rewound on it, weigh approximately 10,000 lbs. This winder embodies improvements that were just idle dreams a short decade ago. It is as far in advance over the old time conception of a winder as the radio over the moccasin telegraph. Especially constructed and dynamically balanced steel drums, cutter roll and riding roll, permit this heretofore unheard of speed.

The patented drum grooving produces a firm hard roll of evenly wound paper, and the Cameron system of cutting against a cutter roll, close to the point of winding insures smooth, straight roll edges.

The current conception of winding a hard roll is to employ more brake effort on the mill or parent roll, tending to place undue strain on the paper, which is afterward rewound into a finished roll. This is not so with this winder. The density of the finished roll is governed by the regulation of pressure on the riding or pressure roller and on the wind shaft bearings, coupled with exact predetermined ratios of drum and roller speed, so that the mill roll tension is employed to govern the sheet entering the winder and very little of it is passed on to the rewound roll.

A machine of such width and speed to meet the exacting demands for the high class rolls required by Edward Lloyd Limited, must be built of the highest grade of alloy steel and other materials. The world has been combed to find the best material for each specific part.

Johns-Manville Corp. Lease Oswego Mill

OSWEGO, N. Y., December 24, 1934—Announcement is made of the leasing of the properties of the Oswego Board Corporation, a subsidiary of the St. Regis Paper Company, to the Johns-Manville Corporation for a term of five years with a renewal clause in the option. The concern is rated as among the largest producers of insulating wallboard and other materials in the country. The plant is modernly equipped and was placed in operation by the St. Regis interests in 1928 after being built the preceding year. Since the opening of the mill the Johns-Manville Corporation has served as distribution agents for the product. The plant will employ about 125 persons and plans to produce weekly tons of insulating wallboard from wood pulp and other cellulose ingredients under an electrical quick-drying process.

The new occupants took possession several days ago and for the past few weeks an appraisal of the property and equipment has been under way. A huge tract of land comprising 70 acres in the vicinity of the plant with excellent shipping facilities is included in the lease. It is understood that General Manager John Weiner will continue in that capacity. In order to meet business demands alterations in equipment are planned which will be completed in about two months when steady operations are anticipated. Whether or not any new forms of insulating board or other fiber products will be manufactured could not be learned. However, there is a possibility that the plant will be enlarged.

Whitaker Co. Pays Extra Dividend

The Whitaker Paper Company has declared a dividend of $1 a share on the common stock, payable January 2 to stock of record December 20. On August 10 company resumed dividends with a similar payment.

PAPER TRADE JOURNAL
ESTABLISHED 1872

15 West 47th St., New York, N. Y.

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Price, Per Copy, 10 Cents

United States, Per Annum, $4.00

Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCIX New York, December 27, 1934 No. 26

This publication is now and always has been printed on paper made in the U. S. A.

COMING EVENTS

American Paper and Pulp Association, Fifty-Seventh Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 18-21.

Technical Association of the Pulp and Paper Industry, Convention, Waldorf-Astoria Hotel, New York, February 18-21. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 21.

Salesmen's Association of the Paper Industry, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 19.

New York Association of Dealers in Paper Mill Supplies, Annual Banquet, Hotel Commodore, Wednesday, February 20.

National Paper Trade Association of the United States, Convention, Waldorf-Astoria Hotel, New York, February, 18-20.

Canadian Pulp and Paper Association, Annual Meeting, Montreal, week of January 21.

Technical Section, Canadian Pulp and Paper Association, Annual Meeting, Montreal, January 23-25.

BRIGHTENING PROSPECTS INCREASE WITH YEAR'S CLOSE

The paper industry is closing the most active and satisfactory year that it has experienced in some time. The prospects for the year just about to open also are brighter than they have been in a number of years. Business in general is better and signs are multiplying that the betterment will continue at an accelerated pace during 1935. Dun & Bradstreet say that comforted by the assurance that 1934 will close with trade positions from both the volume and profit standpoint the strongest achieved in five years, plans for a broader expansion in 1935 now are being formulated. Plant enlargement and equipment replacement have been in progress for many months, as realization has grown that the period of readjustment definitely is in the past and that only a perfected state of preparedness can cope with the speed of the renewed activity which the near future admittedly holds. Each week brings more abundant evidence of the power of individual initiative and aggressiveness to reach quickly the desired objectives, which kept constantly beyond the slow grasp of massive group attack. Long-term calculations again are in the ascendency, as the excessive regulatory provisions, which hampered commercial procedure during most of the year just closing, are well on the way to sweeping revision if not to desuetude.

The final week of Christmas-gift buying more than exceeded the highest totals which had been set for it. In some of the large centers, where daily estimates had been tinged with no small degree of doubtfulness as to the extent of the demand, the preliminary estimates of sales for the entire Christmas season were more than surpassed before the final week had been reached. With the surge of last-minute buying yet to be recorded, retail sales for December are placed conservatively at 20 to 30 per cent in excess of those of a year ago. To most retailers the Christmas season has brought the largest sales since 1930, with many reporting the 1929 figures exceeded.

The reports received from the leading centers of distribution in all parts of the country were uniform as to the abruptness of the increase in sales from the total of the week preceding and the extension of the spread over the 1933 comparative figures.

In industrial operations the contraseasonal uptrend is becoming more forceful, with gains for the week particularly emphatic in those divisions identified with the production of steel, building materials, plumbing supplies, automobiles, farm equipment, textiles, and shoes. Instead of being bolstered chiefly by the support forthcoming from areas where Government expenditures have been heavy, industrial recovery now is receiving the force of expanding activity in nearly all parts of the country, with the plans now being announced indicative of some new peaks being reached in 1935. The extent of the revival since early Fall has carried the Dun & Bradstreet Business Activity Barometer steadily upward for nine consecutive weeks to stand currently at 69.6, as compared with 67.7 a week earlier. At its present position, the barometer is only 1.5 points below the year's peak of 71.1, which was touched during the week of June 13. When compared with 63.1 registered for the corresponding period of 1933, there has been a gain of 6.5 points, or 10.3 per cent.

The lines marking the trend of the major industrial indices are being extended more definitely upward, and for the balance advances are replacing the declines which had been in evidence since Midsummer. One of the outstanding instances of improvement is provided by the steel industry, as a contraseasonal rise for the ninth consecutive week has lifted the operating rate to 34.6 per cent of capacity, the highest since the June peak and in excess of any December rate back to 1930. The moderate increases recorded since the first week of September, when activity dropped to 18.4 per cent of capacity the rate has shown an increase for twelve of the fourteen intervening weeks. The widening consumption of electricity, in both homes and factories, brought a gain of 1.4 per cent in electric power output for the week, with the total rising to the highest level in four years, as it was exceeded by no comparable figure back as far as December 20, 1930. The increase over the 1933 total amounted to 7.5 per cent,

as compared with a gain of 7.7 per cent in the previous week.

Advancing to the highest total in nearly three years, bank clearings for the twenty-two leading cities of the country were 32.5 per cent above the comparable 1933 aggregate, in contrast to a gain of only 15.7 per cent for the previous week. The Weekly Food Index continued at a four-year peak, a gain of 1 cent lifting it to $2.47, which represented a rise of 32.1 per cent from the position during the corresponding week of 1933. While the number of commercial failures practically was unchanged, the total was only 11.2 per cent under the comparative 1933 figures, whereas a week earlier the decrease amounted to 23.4 per cent.

May Build Pulp Mills in Northwest

[FROM OUR REGULAR CORRESPONDENT]

SEATTLE, Wash., December 17, 1934—It is reported here by a local bank official that the Puget Sound timber areas are being investigated by two Eastern business groups who are seriously contemplating building pulp plants within the next two years.

Reason for the East's interest in Pacific Northwest paper and pulp production is answered in the steadily increasing demand for Washington-Oregon cellophane and rayon products and the expanding market for paper and pulp. Seattle business men have professed confidence which has reached a note of optimism over possible expansion of the industry in 1935. Seattle bankers share the enthusiasm of business leaders.

It is also pointed out that interest in the Pacific Northwest paper and pulp industry has been enlivened due to the upturn of profits made by Washington-Oregon plants. An increase averaging 77 per cent in the market value of these companies in the last twelve months has given them a high financial grading.

Thorton T. Munger, director of the Pacific Northwest forest experimental station reflects the general confidence of the governmnt in looking to the Northwest to produce a big part of domestic pulp.

He says, "The Pacific Coast has, without doubt, the growing capacity to produce for all time a very large volume of timber of which enough can be of the acceptable pulpwoods to stock in perpetuity more mills than there are at present.

"There is enough pulp timber standing in the forests now to stock all the present plants for many, many years and to justify considerable expansion of the industry."

Argentine Imports Less Newsprint

WASHINGTON, D. C., December 26, 1934—Imports of newsprint into Argentina during the month of October were estimated to be 18 per cent under those of the preceding month, according to Assistant Trade Commissioner Jule B. Smith, Buenos Aires. The United States and Finland were credited as being the leading sources of supply, although the question is raised whether most of the newsprint shown to have been shipped from American ports was not Canadian in origin. Imports into Argentina during the first ten months of the current year are estimated to have reached a total of 143,179 short tons, distributed as follows: Canada 48,548 tons, Finland 32,040 tons, the United States 26,659 tons, Sweden 21,472 tons. Germany, Norway, and Newfoundland supplied the bulk of the remaining shipments.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Industry Production Ratios for the designated periods.

	Reporting Mills		Total Production
	Number	Capacity	Ratio
September, 1934	292–299	.....	59.4%
October, 1934	297–375	.....	64.7%
November, 1934	375–391	.....	61.0%
*Week ending December 8, 1934	374	152,772	61.2%
*Week ending December 15, 1934	295	121,276	61.9%

The weekly paper capacity (based on 6 days of 24 hours each) for all mills operating wholly or partially under the General Code for the Paper and Pulp Industry is approximately 175,000 tons. This figure has been tabulated from mill questionnaires and in certain instances from daily capacities given in Lockwood's Directory of the Paper and Allied Trades.

Detailed statistics showing the number of mills reporting by ratio groups are given below:

	Number of Mills Reporting	
	Week ending	
Ratio Limits	December 8, 1934	December 15, 1934
0% to 50%	151	109
51% to 100%	223	186

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

September, 1934	62%
October, 1934	63%
November, 1934	56%
December 8, 1934	56%
December 15, 1934	57%

Revised statistics covering delinquent mill returns will be shown in later reports.

Paper Bag Industry Trade Practice Committee Authorized to Proceed

WASHINGTON, D. C., December 26, 1934—NRA has announced approval of organization and procedure plans for the paper bag industry's trade practice complaints committee.

Conditional approval was given the procedure plans. The committee is to consist of the following:

H. S. Daniels, Union Bag and Paper Corporation, New York City; T. E. Jewell, Waltham Bag and Paper Company, Waltham, Mass.; Alfred Bleyer, Alfred Bleyer & Co., Brooklyn, N. Y.; Gordon Friend, Thos. M. Royal Company, Philadelphia; and H. T. Rosenfield, Continental Bag and Paper Corporation, New York City.

Paper Firms Get R. F. C. Loans

WASHINGTON, D. C., December 26, 1934—RFC announces the following loans were made during November, each bearing interest at 6 per cent.

Ames Safety Envelope Company, Boston, Mass., $6,000; Metropolitan Paper Box Company, New York City, $5,000; and Tarentum Paper Mills, Tarentum, Pa., $125,000.

Consolidated Announces Wage Advance

GRAND'MERE, Que., December 22, 1934—Geo. M. McKee, chairman of the Operating Committee of the Consolidated Paper Corporation, Ltd., announced from here today that the corporation had arranged a five per cent average advance to all hourly paid employees of the corporation, effective January 1, 1935. This covers the following divisions: Laurentide, Grand'Mere; Belgo, Shawinigan Falls; Port Alfred; Wayagamack, Three Rivers. The advance will affect approximately 2,500 employees in these communities.

MATHIESON *SPEEDS UP*

Alkali Deliveries in the Southwest

CONSUMERS throughout the Southwest can now get deliveries of alkali in a matter of *hours!* Beginning this month, Mathieson's plant at Lake Charles, Louisiana, offers this fast delivery service.

Located at a virtual hub of transportation lines, this new source of supply speeds up alkali deliveries in the Southwest to a degree hitherto unknown. Radiating out of Lake Charles are the lines of three great railroad systems—the Southern Pacific, the Kansas City Southern and the Missouri Pacific. The fast freight schedules from Lake Charles, maintained by these carriers, permit timing of deliveries in *hours* rather than days, even to points as far north as St. Louis and Kansas City.

In addition to speedy rail delivery service, the new Lake Charles Plant offers substantial savings in transportation costs both by rail and by water to consumers in the South and Southwest, and by water to points on the Atlantic and Pacific seaboard, along the Gulf Coast, and on inland waterways including the Mississippi River and its tributaries. Water shipments are loaded on steamers and on barges at our own plant docks at Lake Charles.

We shall be glad to discuss with consumers the advantages of Lake Charles as a source of supply of alkali—in carloads, trainloads or shiploads.

Mathieson Chemicals

© THE MATHIESON ALKALI WORKS (INC.) . . . 250 PARK AVENUE, NEW YORK, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

A Tentative Basis for Specifications On Wax Size*

By Harold Sinclair[1]

It was less than seven years ago that wax sizes were first introduced into the paper industry in this country on a commercial basis. Since then their use has expanded continually, until now they are being employed to advantage for almost every grade of paper and board, either in conjunction with, or to replace rosin size. An interesting report published in "The Naval Stores Review" of November 3, 1934, shows a very heavy let-down in the production of rosin sized papers during 1934, but a substantial increase in wax sized papers during the same interval, together with the tendency to use more wax in proportion to rosin. Thus at last wax size must be considered a chemical of considerable importance entering into the manufacture of paper products.

Much has been published regarding the advantages gained from sizing paper with wax instead of rosin, and we will not dwell here on the superior qualities of wax-sized papers, which are by now well recognized by the trade. Because wax sizes are still comparatively new raw materials in the paper industry, however, there is a lack of widespread knowledge concerning the various types and grades available, and it is our intention herewith to clarify this situation, especially from the viewpoint of the prospective buyer. It is hoped that the information presented herein will serve as a guide to present consumers and will suggest specifications for the paper purchasing of wax sizes.

Wax sizes are essentially colloidal suspensions of wax in an aqueous medium, and as such are extremely susceptible to chemical and mechanical conditions; much more so than rosin size. Thus only wax sizes manufactured under rigid specifications and of known quality should be purchased. The old adage "penny wise, pound foolish" applies with particular aptness to wax sizes. Every purchaser of wax size should insist on knowing exactly *what* he is buying.

Per Cent Solids

The first specification that is necessary is the concentration of solids. Prepared rosin sizes contain a certain amount of water, which ranges from 5 to 10 per cent in so-called dry size, to 30 to 40 per cent in paste or liquid sizes. Wax sizes also contain water, usually in greater quantity than rosin sizes since water is the medium in which the wax is dispersed. A buyer comparing various wax sizes, therefore, must know the amount of water present in each, in order to form a fair basis of comparison for both performance and cost. This is indicated by the solids concentration, given in terms of percentages. For example, a wax size of 45 per cent concentration means a size containing 45 per cent solids and 55 per cent water. The purchaser should not only insist on a statement from the seller as to the concentration of what he is buying, but also should test each substantial shipment for solids to make sure it is up to standard in this respect.

Types of Wax Sizes

The next thing the buyer should consider is what type of wax size is desirable to use. In general there are two types of wax sizes, namely, rosin-wax sizes which are dispersions of rosin and wax blended together in the correct proportions and all-wax sizes which are emulsions of wax containing no rosin. Rosin-wax sizes are used far more extensively and have a wider field of application than all-wax sizes.

Ratio of Rosin to Wax

In purchasing rosin-wax sizes one of the most important specifications is the ratio of rosin to wax. The buyer should know the percentage of rosin and the percentage of wax in the size furnished by the seller. Research has shown that a definite relationship exists between the amounts of rosin and wax present, and the maximum results that are obtained with certain ratios.[2] In a mill where a low percentage of wax is desirable the ratio of approximately 80 per cent rosin and 20 per cent wax will give efficient results. For a higher wax content in the sheet a ratio of approximately 60 rosin and 40 wax will give best results. While deviations from these ratios are made in some instances, they remain as good examples.

Another matter of importance is the type of rosin-wax size. Rosin-wax sizes can be subdivided into two classifications, depending upon their method of manufacture. In one group the size is made by blending the rosin and wax

* Presented at the meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry, Appleton, Wis., Dec. 11, 1934.

[1] Member TAPPI, Technical Advisor, Bennett, Inc., Canton, Ohio.

[2] Neitzke, O. F., "Sizing Characteristics of Wax Sizes," Paper Trade J. 95, No. 18:29-31 (Nov. 3, 1932).

before the size is emulsified. In the other group the size is made by adding wax to cooked rosin size or by using a wax emulsion in conjunction with rosin size. Rosin-wax sizes prepared in accordance with the methods of this second group can not be considered as true rosin-wax sizes, and although they are used to a certain extent they are not as efficient or satisfactory as genuine rosin-wax sizes. One of the explanations for this is that when rosin and wax are blended before the size is made, the dispersed particles constitute a rosin-wax compound. When wax or wax emulsions are added to rosin size the resulting size consists of particles of rosin and particles of wax dispersed separately. Now the increased sizing efficiency of rosin-wax sizes over rosin sizes is largely due to the fact that wax lowers the melting point of rosin and when the rosin-wax size is fluxed by the driers on the paper machine it will spread over a much greater area than rosin size. Obviously when the particles of rosin and wax are dispersed separately in the size, the wax, not being combined with the rosin, does not lower its melting point, hence inefficient results are obtained. Then too, when the rosin and wax particles are dispersed separately there is often a tendency for the wax particles to collect on the press roll and cause paper making difficulties.

Most rosin-wax sizes contain some sort of stabilizing agent in addition to the rosin and wax, to prevent separation and to insure proper stability of the size when diluted. Usually the composition of the stabilizing agents employed are well guarded trade secrets and the buyer is unable to secure much information on this subject. Nevertheless, the purchaser should know the amount of additional stabilizer used in the size, as well as its general character, as this may have a noticeable effect on the properties of the finished paper.

Rosin and Wax Specifications

The grade of rosin used in rosin-wax sizes should, of course, be specified by the buyer. Customarily this is G gum rosin. Where color is not important FF wood rosin can be employed at a slight saving in cost. In some cases decolorized wood rosins have proved very advantageous due to their brightness, uniformity and freedom from dirt.

Curiously enough specifications on the wax used for rosin-wax sizes have been completely overlooked by nearly all buyers. The type of wax frequently employed is either white scale wax or yellow crude scale wax. The reason for this is that these are the cheapest waxes obtainable under present market conditions and there is an abundant supply. Yet scale waxes are not ideally suited for paper sizing. Perhaps the main objection is their low melting point which ranges from 122 to 126 deg. F. Rosin-wax sizes are very susceptible to temperature conditions. In many mills the paper stock is heated to more than 125 deg. F. either by the addition of live steam, or as a result of jordaning or similar mechanical treatment. Under such circumstances a rosin-wax size containing scale wax will not give efficient results, and at times the wax, agglomerated by the heat, will give serious size spots. Attempts have been made to overcome the defects of scale wax by using refined paraffin wax. This helps somewhat as the melting point is higher, but the difference, which is from 128 to 136 deg. F. is hardly worth the substantial increase in cost. Furthermore, both scale waxes and paraffin wax are crystalline in structure which means that they leave a film on the paper fiber that tends to be ruptured by bending or calendering. This, in turn affects the sizing. The most satisfactory wax for use in paper sizing is an amorphous wax with a high melting point of 150 to 160 deg. F. Such waxes have recently been made available at approximately the same cost as scale waxes, through developments in petroleum refining technique. When it is considered that, after all, the results secured from the use of rosin-wax sizes depend to a considerable extent on the type of wax employed, the importance of a proper specification on the wax becomes apparent. Many buyers would profit by adopting such a specification and testing the wax present in the size for melting point, penetration and other properties.

The All-Wax Sizes

We come finally to the all-wax sizes. Unfortunately, this term is a misnomer for many products are offered which are not wax sizes at all but emulsions or dispersions of fatty acids, sulphonated oils and tallows, hydrogenated or oxidized compounds of oils and greases. While emulsions of this nature can sometimes be satisfactorily used to secure certain results, they should be clearly differentiated by the consumer from genuine wax sizes.

Since the purpose of using an all-wax size is to incorporate wax into the paper, the basic specification on the part of the buyer should be the wax content of the size. All-wax sizes are aqueous dispersions of wax held in suspension by a stabilizing agent. It is preferable to keep the amount of stabilizer as small as possible, not only for lower cost but also because the emulsifier in most cases detracts from the waterproofing or sizing properties of the wax. Some wax sizes contain as high as 20 per cent of emulsifier and hardly deserve the title of all-wax sizes, although they are often sold as such. It is possible to secure wax sizes with over 99 per cent of wax and less than 1 per cent stabilizer. These are genuine all-wax or 100 per cent wax sizes and give the most efficient results.

Obviously, the type of wax used in an all-wax size has a very important bearing on the results obtained, and the purchaser should specify a wax which is certain to comply with his requirements. Our previous remarks regarding the types of waxes used in rosin-wax sizes apply with even more emphasis to all-wax sizes, in which the proportion of wax is far greater. In general, the buyer will do well to specify a high melting point amorphous wax, and to steer away from scale or paraffin waxes.

Stability of All-Wax Sizes

The stability of all-wax sizes is something to be considered, but no fixed rule can be applied here. In certain instances an all-wax size which is stable to acids, that is, will not precipitate at a pH of 4.5, is essential for purposes of application. But in other cases it is desirable to use an all-wax size which will be precipitated by acids, especially alum, to insure the highest degree of waterproofing. Of course, any all-wax size should be stable enough to stand shipment, and storage for some length of time without agglomeration or separation.

In using all-wax sizes the buyer should, preferably, inform the seller as to the results desired, as well as the conditions under which the all-wax size will be used, and then follow the technical advice of the seller. Since there is a considerable amount of difference between the all-wax sizes on the market the buyer should be cautioned not to apply the directions given for use of one all-wax size to another all-wax size, as difficulties are bound to be experienced for which the seller can not be responsible.

Although most of the raw materials entering into the manufacture of paper are purchased on rigid specification, little attempt has been made to set specifications for wax sizes. We have tried here to make a few suggestions which will be helpful to the purchaser of both rosin-wax and all-wax sizes, and to indicate a tentative basis for specifications on wax sizes.

Rapid Growing Trees

By Harold R. Murdock[1]

Recently the pulpwood industry has shown considerable interest in the fast growing pines of the South. It is generally believed that this rapid growth is due to the warm climate, because the pine seems to grow abundantly on poor, sandy soil upon which little else will thrive. But, there may be other factors entering into this matter of rapid growth, and before contenting ourselves with this conclusion we should consider them.

Paulownia trees are quick growing. The New York Botanical Garden Journal, Vol. 21, No. 244, pages 72-73, reports one tree which grew fourteen feet in its second season and growths of from eight to twelve feet on other trees are commonly observable. The growth slows down after the second or third year but the tree mentioned, after thirteen years' growth, is forty feet high, or an average annual growth in height of three feet. The diameter of this tree, at about four feet from the ground, is not quite thirteen inches, representing an annual growth in diameter of just about one inch. The writer has obtained Paulownia trees, grown in western North Carolina, which averaged five and one-half inches in diameter for five years' growth. Paulownia trees, growing in these mountains, however, are less dense than pine, the former being about eighteen pounds per cubic foot of wood against thirty pounds for the average southern pine. Nevertheless, here is an example of a tree, growing fully the equivalent of the southern pine, but in more northern climate. Therefore, climate is not the sole factor in rapid growth.

The name of Luther Burbank is generally associated with fruits and flowers, but a study of his reports brings out the startling information that he made leisurely growing trees grow at a phenomenally accelerated rate, and without a decrease in specific gravity of the wood. In California, where Burbank carried on his many experiments, there are two walnut trees, growing side by side, one tree being ten times larger than the other, although the two are of the same age and grew from seed of the same parent. Many other fast grown walnuts are in evidence there. But, how was it done? Surely it was not the warm southern California climate, because the two trees have not grown at the same rate.

Paradox Walnuts

The European or English walnut had been introduced into California a number of years before Burbank made his experiments. The California walnut also grows there, and Burbank fertilized its flowers with pollen from the European species. The experiments presented no particular difficulties and the nuts from the hybridized flowers were, to all appearances, unchanged. But, when the hybridized nuts were planted the following season, some of the seedlings at once showed enhanced capacity for growth. Their pure bred relatives became dwarfs to them and because these trees so far outstripped their companions Mr. Burbank named them Paradox walnuts. "At sixteen years of age these trees were sixty feet in height and as much in breadth of branches; the trunk, four feet from the ground, being two feet in diameter. Meantime English walnuts on the opposite side of the street averaged only eight to nine inches in diameter at thirty-two years of age and had a spread of branches only about one-fourth that of the youthful Paradox." These hybrid trees produced very few nuts, it being obvious that the two strains are so variant that their progeny is made relatively sterile. The sterility, however, is not absolute for the first nuts germinated readily. These second generation hybrids showed variations in size and foilage. Some resembled one or the other parent, while others bore scant resemblance to any walnut. Some were bush-like, from six to eighteen inches in height, side by side with trees that had shot up eighteen or twenty feet, although all were of the same age and grown from seeds gathered from the same tree. From this extensive variation it has been possible to select trees of even more rapid growth than the second generation hybrids. Curiously enough, the wood of the Paradox walnut is exceedingly hard; even harder and more close grained than that of the ordinary black walnut. This is certainly surprising in view of the rapid growth of the tree.

Encouraged by such results, another series of hybrids were undertaken, produced by mating the California walnut with the black walnut of the eastern United States. This hybrid, which was called the Royal walnut, showed characteristics analogous to the Paradox hybrid. It had the same tendency to extraordinary rapid growth and in subsequent generations it showed the same tendency to produce varied company of dwarf and of giant progeny. In one important respect, however, the Royal hybrid differed fundamentally from the Paradox hybrid. Instead of being relatively sterile, it showed the most extraordinary fecundity. At sixteen years of age, one of these trees produced a harvest of nuts that filled twenty apple boxes.

Importance of Hybridization

The one difficulty encountered in this experimentation was that seedlings from the hybrids could not be depended upon to reproduce all the good qualities of their parents. The science of biology shows that in all forms of life, second generation hybrids tend to throw back to the divergent grandparental strain. This difficulty was readily overcome by employment of the well known method of grafting, and it was also found that by a system of selection, propagation of the phenomenally fast growing trees could be extended.

From the evidence, therefore, it should be clear that hybridization is a more vital factor to rapid growth than is climate, and a great opportunity exists in the many species of pines to produce hybrids of even faster growing ability than the southern pines and even growing species in more northern climates. To realize such progress will require "pennies and patience" and possibly a more definite economic status than now exists. But, the possibilities for producing pulpwood trees of faster growth than heretofore, in the face of Burbank's work, are undeniable.

Work at Boyce Thompson Institute

Bearing somewhat on the same thought, but probably more remote in attainment than the hybridization experiment, is the research carried out at the Boyce Thompson Institute for Plant Research at Yonkers, New York. This Institute is primarily concerned with the study of plants rather than trees, but the adaptability of the results to pulpwood forests is but one step farther and is cited to point out the possibilities.

We all know that the buds of many plants, after the cessation of active growth in the spring and summer, be-

[1] Member TAPPI, Director of Research, Champion Fibre Company, Canton, N. C.

come dormant and will not start into renewed growth at once, even if placed under conditions of temperature and moisture that are usually favorable. Because of this condition, horticulturists have been annoyed because it has hindered them from bringing their crops to harvest at those seasons of the year when market conditions are more favorable. Any method to treat dormant plants to induce development in any desirable period would be an achievement of the first order in economical importance.

Johannsen showed in 1896 that if he exposed dormant plants to the vapors of ether and chloroform, a considerable shortening of the rest period of the plant was obtained. This inspired many workers to carry out similar experiments and it was found that such chemicals as ethyl bromide, sodium nitrate, gasoline, ethylene dichloride, acetylene, hydrogen cyanide, acetaldehyde, hydrogen, peroxide, etc., were capable of shortening the dormant period in the plant. The Boyce Institute has made experiments with about 250 different chemicals, studying the range of concentrations and the series of treatments for each chemical. As a result of this extensive study, they have selected ethylene chlorhydrin as of considerable promise. In order to establish a well integrated root system, lilac plants were grown, and during this active period they flowered and behaved normally. At the beginning of the dormant period, the plants were exposed to the vapors of ethylene chlorhydrin. It required about 10 cc. of chemical per 100 liters of air in the average case, but the most favorable concentration appeared to vary with the species, with the condition of dormancy and the efficiency of the room in retaining the vapor. Evaporation of the chemical was facilitated by air currents from an electric fan. After receiving this treatment the plants were placed in a greenhouse under conditions favorable for forcing. A plant, which was treated in November was in full bloom and active growth one month later, while the check plant, was still dormant. There can be no doubt, therefore, that chemical treatment can shorten the rest period and force the growth of vegetation, and within recent years there have been fairly large scale experiments made along these lines.

Other examples of fast growing trees might be cited; for instance, the yellow poplar, which appears to prefer the more temperate climate than the southern pine. Instances might be given also, where in the same stand of trees some have much more rapid growth than others of the same species. It is necessary, therefore, to consider besides the climate, such factors as the soil, the drainage of the soil and more particularly the progency of the seed.

Economic conditions will determine whether or not such experiments will be carried out to produce fast growing pulpwood. It is admittedly, a problem for the future and probably one to be studied through governmental agencies. It is pleasant to speculate as to what such methods might do to the pine in particular, which occurs in so many varieties. If mated with the spruce of the north, the southern pine might take on pulpwood characteristics more in keeping with the spruce but retaining that ability for rapid growth so well exemplified by the slash pine of the south. Then, again, by proper hybridization the pine might be able to lose its variation between spring and summer wood, thereby making the wood more easily reduced by the known processes.

Thus we might go on dreaming of the ideal pulpwood tree, which these scattered experiments so strongly indicate as being possible. The answer to these dreams remains locked up in Nature's storehouse, awaiting the patience and energy of an army of scientists. Certainly, however, fear and alarm over the exhaustion of our pulpwood resources appears to be vanishing.

Law of Patents for Chemists

A second edition, revised and enlarged, of Joseph Rossman's "The Law of Patents for Chemists, has just been published by The Williams & Wilkins Company of Baltimore, Md.

Dr. Rossman is a member of the Technical Association of the Pulp and Paper Industry and a member of the Bar of the U. S. Court of Customs and Patent Appeals and the U. S. Supreme Court. He has written a number of interesting patent reviews for the PAPER TRADE JOURNAL.

The book has been thoroughly revised in order to bring it up to date in all matters regarding the present procedure and practice in the Patent Office. The section on patent relations of employers and employees has been greatly enlarged as this subject is growing in importance.

The title of chemist in the pulp and paper industry is loosely applied to all technical men engaged in mill control, testing or research work. The advances that have been made in the industry have necessitated the employment of a large number of individuals who have been well trained in the fundamentals of chemistry, physics and engineering. It is these men who are developing new machinery and processes and such men need to know as much about patent law as they do of engineering details. Every chemist is a potential inventor.

The book is divided into five parts. Part I explains why a chemist should know patent law, what patents are worth to a chemist or inventor and when to patent or keep information a secret.

Part II defines the essential patent law principles and answers such questions as When to apply for a patent; what results should be published; what a patent is; the distinction between process, product and apparatus patents. A number of interesting illustrations are given. These include the details of the aspirin, stainless steel, Hall aluminum and the Bakelite patents.

Part III tells an inventor what he should know concerning the steps to take in obtaining a patent; what claims to make; what drawings to show; how to handle interferences; and how to correct patent applications.

Part IV deals with the inventor's rights under a patent and covers such subjects as infringement suits, employer-employee relations and indicates in detail how to enforce a patent.

Part V contains much useful information of value to inventors. It directs attention to the Official Gazette, how to obtain copies of patents, how to make a patent search, how to appraise a patent and how to find out about foreign patents.

The appendix contains an excellent bibliography and many illustrative cases as well as a glossary of over 200 patent law terms.

The book is well printed and cloth bound, has 360 pages and may be obtained through the book department of the Technical Association of the Pulp and Paper Industry for $4.50 per copy.

St. Helens Regains Blue Eagle Rights

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 20, 1934—The National Industrial Recovery Board today restored to the St. Helens Pulp and Paper Company, St. Helens, Ore., the right to use NRA insignia. The company had recently lost its Blue Eagle rights for violation of the paper and pulp industry code.

The code authority for the industry has assured the National Compliance Council that the company is now complying and will continue to comply with the code.

The Bewoid Rosin Size Process*

By George F. Kennedy[1]

The Bewoid colloidal process, invented by Bruno Wieger of Germany is a complete departure from previous methods. By this process rosin is dispersed mechanically in an alkaline solution of sodium caseinate.

The Bewoid process is essentially a method for the production of a high free rosin size in which the particles of free rosin are so dispersed in an alkaline solution of sodium caseinate that the size as produced at a concentration of 43.93 per cent of actual rosin and 45 per cent solids may be diluted to any desired concentration by simply adding the size to cold water.

One hundred pounds of rosin made into "Bewoid" Size produces a size of the following composition:

Rosin—free	92.9650 pounds
Rosin as $NaC_{20}H_{29}O_2$	7.5518
Casein	2.0000
Na combined with casein	.0393
Dry matter per 100 pounds of rosin	102.5561

Each batch of size contains 150 gallons and each gallon contains 3.66 pounds of rosin and 3.75 pounds of dry matter. The composition is always the same because the same quantity of rosin to the batch is always used and the batch is always made up to 150 gallons.

Materials Used

The apparatus used is furnished by the American Bewoid Corporation for installation at the paper mill. This apparatus includes the Bewoid mill, measuring vessels, storage tanks, motors, pumps, etc. There are two types of installation. The regular installation occupies a floor space of 12 square yards and has a daily capacity of 2750 pounds of actual rosin in size solution. The larger installation will have a capacity of 8250 pounds of converted rosin per 24 hours of operation.

The materials used per batch of size are: 550 pounds of rosin; 5.5 pounds of Caustic (1 per cent); 11.55 pounds of lactic casein (about 2 per cent); and 205 pounds of steam for melting the rosin.

12½ kwh of power and 2½ hours of labor are required.

In the making of Bewoid size the rosin is melted in the steam jacketed mill and while agitating the molten rosin at 300 r.p.m. a solution of caustic is added. This is followed by a solution of sodium caseinate. When the dispersion is complete the batch is diluted with water to 150 gallons and transferred to the size storage tank. It may be added to the beater at this concentration or diluted, if desired, with cold water before furnishing to the beater.

In regard to the cost of making Bewoid size, it is no more expensive to make than rosin soap sizes. Roughly, the cost including electrical power, steam, casein, caustic and labor is about 50 to 52 cents per hundred pounds net weight of rosin.

Advantages Cited

In addition to the economy in making the size itself, the use of Bewoid size has shown the following advantages in varying degrees at different mills: Reduction in rosin consumed; reduction in alum consumed; improved color in paper; improved finish in paper; improved permanence and strength; reduction of froth and foam troubles; reduction of pitch troubles; improvement of wire and felt life; reduction of corrosion throughout the mill, and ability to size at neutral pH and above.

Because of the small amount of alkali used in the making of Bewoid size, less aluminum sulphate is used to obtain the alumina floc in the beaters, and with slow beaten stock and well formed sheets we may reduce our alumina floc to a minimum. With free beaten stock and sheets of open formation we may obtain our floc of alumina by using a flocculating agent after the addition of the alum to the stock. This flocculating agent may be any alkali, whether active or fixed, or any alkaline earth.

If we use less alum, or neutralize the excess acid dissociated on flocculation or dissociated from sodium sulphate formed by double decomposition, we are able to size very close to the neutral point, and obtain a paper that is less acid and less subject to hydrolysis of the cellulose fibers during the drying process. This results in a more permanent paper and a paper which will retain its physical characteristics for a much longer period than papers made under other conditions.

Effect on Color

In regard to color, papers sized with Bewoid size are of a brighter white than those sized with soap sizes, they also have superior writing surfaces, and naturally take a better finish, if a better finish is desired.

The color manufacturers have, heretofore, furnished colors to the paper mills which develop their maximum intensity under acid conditions most favorable to optimum sizing with rosin soap sizes. There is a wide range of colors which may also be used which develop their maximum intensity in a but slightly acid medium. Many of these colors are not only brighter in shade but also lower in price. At present in our trial runs of Bewoid size we have used only the colors available for the making of deep colors and tints at the mills at which these tests were run and it has been necessary for us in these instances to operate under decidedly stronger acid conditions than we desire to operate in order to bring out the maximum intensity of these colors.

On the reduction of froth and pitch troubles, improvement of felt and wire life, reduction of corrosion, these depend on the individual mill and the present conditions under which they operate.

* Presented at the meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry, Appleton, Wis., Dec. 11, 1934.

[1]Member TAPPI, Bulkley, Dunton & Company, New York, N. Y.

Plattsburg Mill Against Reciprocity

PLATTSBURG, N. Y., December 24, 1934—Officials of the local branch of the Berst-Forster-Dixfield Company are greatly interested in the proposed reorganization of the Krueger & Toll match interests and the present fight being waged by the Swedish match trust for a 50 per cent reduction in tariff on importations into this country. It is felt here that any reduction in the tariff would be severely felt and would directly affect the local mill. The plant here is devoted to the production of wrapping paper and labels for the match industry. It is claimed that thousands of farmers, timber jobbers, papermakers and other workers who furnish the raw materials for match manufacture would also be affected by the reduction. Local residents have been urged to write their Congressman to protest against the inclusion of matches in reciprocity treaties with any foreign country and against reduction of duty on the imported product.

Formation of Paper on the Fourdrinier Wire*

By D. McNeill[1]

I am continuing the paper read before the London Division (November 11th, 1932), the object of which was primarily to discuss methods and means of bringing machine-made papers generally more into line with hand-made papers, as far as equality in breaking length tests in the machine and cross directions of the sheet are concerned, and to discover how far this is compatible with maximum production on a 20 foot table. That we have made considerable progress in this direction during the past five years, no one will deny. Some papers, I am told, have been made with the cross tests slightly higher than the machine direction tests. Although I have not seen the actual sheets, I have no reason to doubt the truth of the claims of these people. It does not follow, however, that all classes of paper can be similarly made. This much I will say, that one firm of Scottish engineers are more or less the world's pioneers in this direction. I am here referring to Mr. Milne's patents, and high-speed shaking apparatus for fourdrinier machines.

Dispersion

The importance of good dispersion, at the point of delivery to the wire, cannot be over-emphasized. Maximum dispersion is aimed at with almost every paper, but is unobtainable with a few. Hence, I will repeat that even with its most modern improvements, the fourdrinier is still an imperfect machine as far as perfect formation is concerned when making certain papers. On a given substance, say, 20 pound demy, the degree of dispersion varies according to the nature and length of the fibrous furnish and the degree of beating at a consistency of 1 per cent. Thus, 100 per cent. esparto obtains a good dispersion, while 100 per cent. manilla, beaten to the same degree of wetness, obtains a much poorer dispersion in the ordinary way. Given the same amount of beating, the average run of the following pulps: sulphites, krafts, bleached sulphites, and sodas, vary in intensity of dispersion from the least to the greatest. Cotton obtains a better dispersion than linen, given the same amount of beating; waste papers and brokes generally obtain good dispersion, which is somewhat helped by the small particles of insolubles usually found, such as the remains of rosin sizing, etc. China clay, and loadings generally (excepting starchy and glutinous materials) up to 1 per cent. (and sometimes over) per pound demy help dispersion. An excess of alum, which has the tendency to "harshen" the beaten fibers, sometimes gives too great a dispersion, especially in the case of free-beaten cheaper papers. Applied heat gives dispersion directly according to the rise of temperature and the amount of extra water that can be drained away more quickly. Colored blottings are often better formed than whites, owing to the increased dispersion obtained when the stock is heated up to a high degree in order to fix the dye-stuffs. Rosin size prevents dispersion directly according to the amount added. Thus, it is possible to obtain papers, such as waterleaf extra-strong rag loans and bank notes, insulating papers and parchments (which, in the ordinary way with rosin-sizing, would not obtain good dispersion) nicely closed on the machine. Duplicating papers and blottings are also more dispersed and better closed on the wire and, therefore, better in look-through than papers of similar substance and furnish which are rosin-sized, after making due allowance for the slight difference in beating, and comparing the duplicating with an E. S. writing, and the blotting with a printing antique. It is simply the natural gumminess of the rosin on the surfaces of the fibers which tends to make them cling together and which causes this result. The glutinous properties of certain loadings have similar effects. All other things being equal, at certain mills where soft water is available and paper can be hard-sized with 1 to 2 per cent. of rosin (dry weight), a better looking paper is made than in mills where 4 per cent. rosin is required to hard-size the paper, owing to the better dispersion obtained on the wire, which, of course, is helped by consistently better average drainage from the wire from week to week, due to the absence of grit and gummy dirt on the wire meshes.

Considering the lighter substances of paper generally, the more water one can work along with the stock, according to the speed of the machine and the drainage factor, the better the dispersion; that is why some people prefer to run the stock on to the wire at a speed somewhat faster than the wire speed. This point has been strongly criticised, as it is argued, and sometimes quite correctly argued that the stock should always flow on to the wire at the same speed as that at which the wire is travelling, in order to enable the shake to obtain effect where it is strongest; there are in certain circumstances just as strong arguments the other way. It is fairly certain that, with fast free-running stock on the older type of machine, a better sheet is formed by slightly "flooding" the stock on to the wire. The perfectly balanced modern wet end with high-speed shaking apparatus holds dispersion longer on the table whilst the stock is draining, and does away with the necessity of using a great excess of water, but it cannot always approximate the hand-made makers' "waited for" cant and shake. On a machine like this, with 100 per cent. dispersion on a light substance of free-beaten paper, say, between 25 and 30 degrees S.R., it is possible to run the stock on to the wire at the same speed as that at which the wire is travelling, and to obtain almost equal folding and breaking length tests in both directions. As the substance increases, the dispersion decreases, because of the slightly higher and higher consistencies at which the stock is run on, and with it the cross folding and breaking length test values. The tube-rolls can only remove a given amount of water from a given paper in a given time. As there is hardly any limit to the amount of water that can be removed on newsprint, and the dispersion by dilution can always be guaranteed to be 100 per cent., the speed at which it can be run and formed is more or less governed by the standard of mechanical efficiency obtained. Apart from tube-roll contact, there is no inducement to drain the water away from the stock while the fibers are forming into a sheet, and, as there is a given limit to the amount of water that will drain away with wetter stocks, then there is a definite limit to the speed and a definite limit to the amount of dispersion of the stock running on to the wire, depending on the S.R. degree and the temperature of a given furnish. There is not, however, a constant relation between the degree of dispersion and the degree of beating, although it is quite possible to obtain regular near

* Paper read at Glasgow meeting of the South of Scotland Division of the Technical Section of the Paper Makers' Assn. of Great Britain and Ireland. World's Paper Trade Review, March 16 and 23, 1934.

[1] Superintendent, Hollingsworth & Company, Maidstone, England.

results with wood pulps in particular. The treatment in the beaters and refiners being the main thing, I will refer to this briefly later on.

It will be seen that there are two kinds of dispersion; that which is made possible naturally by dilution with water (low consistency), given, of course, a well-designed head-box; and that which is induced by forcing the stock through a narrow orifice and by speeding up the shake when the dilution is lower than that which will give good dispersion. No amount of inducement has so far been able to approximate the dispersion by dilution; therefore, it follows that, unless one can obtain absolute dispersion into individual fibers by dilution, it will not be possible to obtain absolutely even formation each way of the sheet.

Again, there must be some form of agitation together with the dilution, the old-fashioned hog in the paper maker's vat chest performs this very useful function. Good head-box design, which allows no eddies and gives an even straight-forward flow through the compartments and over the lips, working varying volumes of stock, rendered the hog obsolete for jobbing machines which are run at moderate speeds only, as the fibers are kept nicely suspended and distributed evenly throughout the stock. With the hog, there was a tendency, with rag papers especially, to form hanks which broke away occasionally; with esparto papers to cause "ricing"; and with wood papers to cause unevenness of flow and "lumps" on heavier substances: the head of stuff on any of these papers seldom exceeds 4 to 4½ inches.

On the wire, free stock is kept in suspension by speeding up, or by lowering alternate tube-rolls, by placing a lath of wood or metal under the wire near the slices, by raising the breast, and sometimes by forming a bath under the first 2 to 5 tube-rolls, which are kept stationary, in which the surface level almost reaches the underside of the wire. The method of running two wires together up to the first 6 tube-rolls has also been considered. The whole idea is to reduce 50 per cent. of the dispersed fibers to form criss-cross and to interweave, against the flow of the stock and machine, under the influence of the shake, whilst drainage is taking place. On heavy hard papers made from long wet stock, the breast is relatively lowered with the same object in view, and sometimes the table is considerably lengthened. Contrary to the general belief, on an all-round machine it is sometimes better to have a wire mesh nearer to 60 than 75 for making all substances of paper, because more water can be worked and better dispersion obtained at higher speeds owing to the increased drainage factor, which is very considerable. This, of course, brings up a whole crop of side issues, but I want you to consider

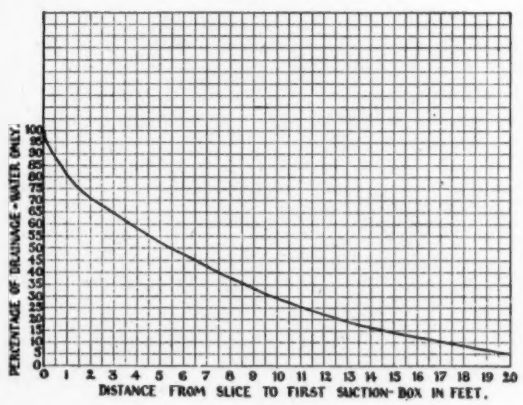
PERCENTAGE OF DRAINAGE - WATER ONLY.
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
DISTANCE FROM SLICE TO FIRST SUCTION-BOX IN FEET.

FIG. 1

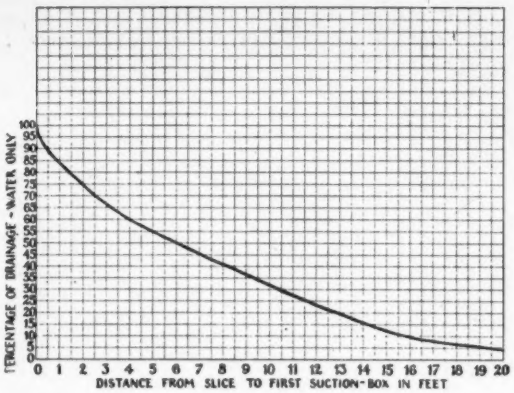
PERCENTAGE OF DRAINAGE - WATER ONLY
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
DISTANCE FROM SLICE TO FIRST SUCTION-BOX IN FEET

FIG. 2

it from the point of view of formation only. Where printing surface is the main aim and object, and with esparto papers generally, it is fairly obvious that this cannot be done; but with a good continuous fiber recovery plant operating on the backwater, and modern wet smoothing presses on the machine, it might pay to consider this possibility of better and quicker formation. There is a definite tendency, amongst paper makers in general, towards strong conservatism when it comes to altering the wire mesh, and rightly so, as so much depends upon a mill's characteristic look-through. The longer table, and the two or more wire machine, are usually considered the only solutions; but if and when sufficient orders are obtained of a certain class, where a change of mesh would be advantageous and much the cheapest way out, then a new characteristic can be obtained, and it follows that, with better dispersion existing at a higher speed, a better formed sheet will result. This problem of dispersion into individual fibers has the peculiar property of not appearing to be a problem at all, as we have all more or less passed it over for years; it is not until one is forced to study it that one realizes what a problem it is. With freer stocks and short straight fibers, it is desirable to hold on to some of the water for a little while longer after it passes the slices, or to speed up everything relatively; with wetter stocks and longer fibers, it is desirable to get rid of more water than can drain away. Then, again, some stocks which come in between these two categories, let us say the majority of ordinary papers, are fairly well suited to the machine when under control of a good machineman.

Let us consider beating, from the point of view of dispersion and drainage, as briefly as possible. Every paper we shall consider will be made on a 72-mesh wire with three suction-boxes and ordinary couch rolls from 100 per cent. E.B. sulphite on the machine as described in my paper of Nov. 11, 1932: the substance will be 20 pounds demy, for simplicity's sake. Taking thoroughly disintegrated pulp as the first stock, that is, where the fibers have all been individually separated without any appreciable beating action taking place, at 14 to 16 degrees S.R., we find that, at one-half per cent. consistency, there is too little dispersion; as the drainage time is so short, and, although a fair sheet of paper can be formed at 500 feet per minute, which is the limit of the machine, it will be found that the fibers lie "dead" on the wire in clotty bunches before one can do anything; at a higher speed, a much better sheet could be formed. The line of approximate drainage would be somewhat similar to the line on Fig. 5, only the drop would be even steeper than that shown. When the stuff has been beaten by "rubbing out" with the roll just sufficiently to enable one to lower it slightly without danger of cutting

the fibers, or when the point is reached when the individual fibers can carry sufficient water on and within themselves to give them a certain amount of lubrication between the roll and the plate, the S.R. reading is about 22 to 23 degrees. With a consistency of about three-fourth per cent. at the head-box, 100 per cent. dispersion is obtained still at 500 feet per minute and the "make" finishes about halfway down the table, which means that it ought to be made at newsprint speed; the line of approximate drainage would be somewhat similar to that on Fig. 3. The slight surface tension is only sufficient to give "life" to the stock on the wire, but it is not strong enough to prevent the making water from draining away when 1-1/5th seconds have elapsed.

Carrying the beating process a stage further without cutting if possible, to 25 to 26 degrees S.R., a slight breaking up of individual fibers, a slight soaking into the fibers and abrasion of the skin of the fibers is obtained. The consistency at the head-box is reduced to 1 per cent., but, as the fibers are still individually well separated, 100 per cent. dispersion is obtained. The surface tension all round the fibers, and the capillary attraction, are now definite forces preventing drainage; this allows a very good formation to be obtained in conjunction with the shake at full speed, and might be considered the desirable paper made commercially from this furnish.

Taking a further step in beating, still without cutting too much, when the S.R. reading reaches 30 to 31 degrees (we get nearer to a strong paper now), the abrasion, slight breaking up, and soaking under pressure right into the individual fibers is more general. With a consistency of 1 per cent. at the head-box, water and speed are reduced, the latter to about 350 feet per min. to allow for drainage time. It will be noticed that dispersion is still 100 per cent., and a very good sheet of paper can be formed under the influence of the shake, which leaves very little to be desired when tested comparativly in length and cross directions. Alternatively, a fairly good sheet could be formed, showing about 70 per cent. of the strength in the machine direction with 100 per cent. dispersion, still by leaving the make unfinished on the table and by using the suction-boxes to pull away the excess water at about 400 feet per min.; the latter type is one which would most likely be obtained commercially. (Beyond this point of beating, it is not usual to take E. B. sulphite, for obvious reasons, as a suitable furnish.)

Bringing the S.R. reading up to 35 degrees by further gradual beating, we find that the water of association, as Mr. Strachan puts it, is beginning to become troublesome, and, although the consistency of the stock at the head-box

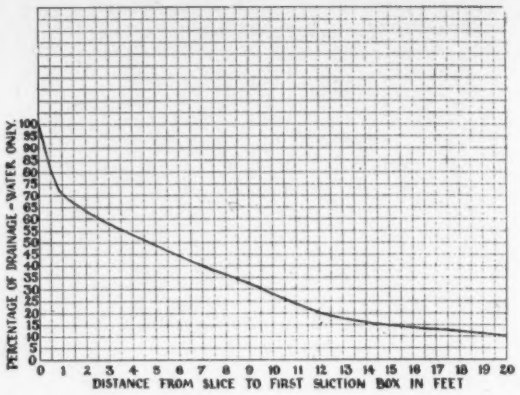

FIG. 4

may still be 1 per cent., it does not follow that there is 99 per cent. of free water with which to form the sheet, as a fair portion of this water is held in control by surface tension and capillary attraction by the water in and on the fibers, and we begin to lose dispersion at the same consistency. (It may seem queer, but it actually is the case that more dilution is required to give 100 per cent. dispersion with wetter stock.) Yet it will be found that a still stronger sheet can be formed on the machine at about 250 feet per minute, giving about 70/30 tests, though the make is carried over the suction-boxes. The reason for this is that the fibers are rendered more distended and homogeneous; the paper now bulks about 1/1000 in. less than when the S.R. reading was 22 to 23 degrees; the look-through begins to become somewhat cloudy.

Lastly, bringing the S.R. reading up to 40 degrees, it is found that one has to raise the temperature of the stock to maintain a consistency of 1½ per cent.; the speed has to be reduced under 200 feet per minute, as there are not sufficient suction boxes to pull away the excess water at a higher speed; the dispersion is poor, and the paper is hard and "tinny," with the formation cloudy and patchy. The dandy-roll has to be taken off because there is only one suction-box before it. It is quite probable that the paper might be saleable, but most likely it would have to be sold at an uneconomic price. Specialty machines, of course, make papers suitable for greaseproofs and the like out of wetter stocks than this. On the wire, the stock is sluggish, the shake acts more as an auxiliary to the slices than as an interweaver, as there is very little free movement between individual fibers, which form into bunches again,

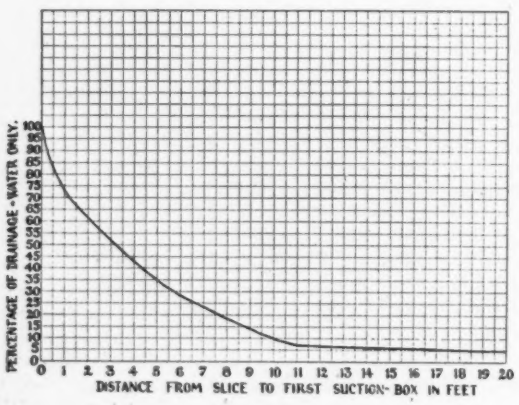

FIG. 3

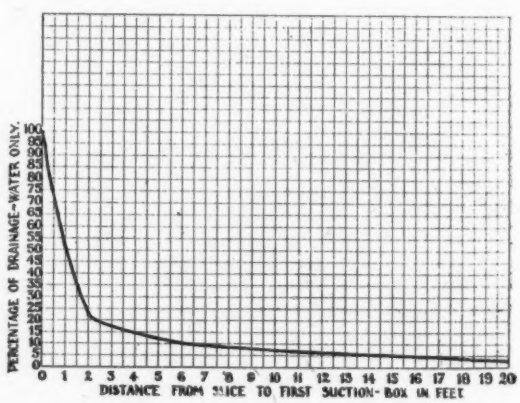

FIG. 5

but more into clouds than into clots, as was instanced at 16 degrees S.R. A 30 pound demy paper would behave somewhat similarly at 35 degrees S.R., and a 40 demy paper at 30 degrees S.R.

Here is a note which I made eleven years ago when preparing a paper on beating: "There is a distinct difference and advantage in kollerganging some wood pulps as against beating them." The kollergang is more inclined to distend the individual fiber in every direction, and one finds more bent fibers in stock from the kollergang; one can obtain a stronger paper at higher speeds and lower S.R. readings with fairly equal strength tests than one can obtain from beaten stock. The larger proportion of bent fibers in kollerganged stock tends to decrease dispersion somewhat but not so much as to make a great difference, as the lower S.R. degree allows more water of dilution. I discovered some years ago that certain Swedish krafts, made supposedly out of the same pulps as that which a prominent English mill used, could give somewhat stronger strength tests with the same fiber lengths; the only difference between the two was that the kollerganged paper contained more bent fibers. This, of course, proves that interweaving is more important than dispersion, but it remains just the same that the dispersion of short and straight, or long and bent fibers is still an essential before they will interweave. It is hardly necessary to add that the average wood and esparto paper requires very little real cutting action, as there are pulps to suit almost every requirement.

For all practical paper making purposes, hydration, as it is termed, may be defined as the association of water with beaten (not necessarily in a beater) cellulose fibers, where both the surface tension and capillary attraction of the water on and in the fibers exerts a retarding influence on the drainage of water through a wire mesh which would ordinarily pass water. The extent of the beating and the accompanying abrasion, distension, and soaking of the fibers in water largely determine the degree of hydration, which varies directly according to the amount of pressure put on the stuff by the beater roll (or other means) under ordinary working conditions; the more water within the fibers, the stronger the surface tension between the fibers. The foregoing is strangely in agreement with my notes on beating read in 1923, when I based my theory largely on experience of re-making waste papers and brokes into paper. Since that time, the hollander beater has been revolutionised considerably by the engineers, and I do not think there is much of a time factor in it now. The beautiful and scientifically grown tree of hydration has brought forth some gorgeous and elaborate blossoms which promised much, but, so far, we paper makers have not had even a glimpse of any fruit, far less a taste of it. I will go as far as to assert that paper makers in this country, where very little pulp is made, need hardly look forward with expectations in this direction, although other industries might gain the advantage of our chemists' work. As far as hydration is concerned, we have been told nothing new of practical value beyond what has been known to paper makers for generations. Drainage through wet-beaten stock is a problem for our engineers to study carefully, because if one could obtain the drainage one would also obtain the dispersion with it, and, with the dispersion, even formation by drainage or water subtraction under the influence of the shake. As it is, it is quite obvious to any paper maker that, in a paper like this, one can only scratch the surface of the subject and only give one instance to illustrate the principles in a general sort of way. There are so many instances one could give, with peculiarities all of their own, that one feels somewhat dissatisfied with it.

Since reading the first part of this paper, the problem of drainage and formation has occupied my mind a few times as to whether it is possible and practical to form perfectly a heavy strong paper on one wire. The idea, which I put forward, of movable suction-boxes on the table itself does not seem to have caught on. Most likely it will in time, but the tube-roll tradition is strong. There is another alternative which, I suggest, could be applied now that we have accurate and glossy, suction-box tops, and that is to lengthen the wire from the table-rolls to the couch-roll, to fit more boxes, and to maintain the shake over them; if one can obtain only sufficient water subtraction under the influence of the shake to hold the formation, then the boxes can fix it in the ordinary way. And now to contradict myself: if drainage can be forced by applying suction on the table, then a better sheet can be made more economically on a *finer mesh* wire.

A rough and cloudy look-through, in a paper with a firm handle, is usually considered to indicate strength; actually, the paper would be much stronger if the stock had been dispersed and made to look closer and finer in character. I am always dubious about a cheap writing paper with an apparently strong look-through, excepting when this is done for the purpose of obtaining opacity, as in an envelope paper. Many, so-called, extra-strongs are simply made by bad dispersion and by manipulation of the suction-box before the dandy-roll; the rattle and the firm handle come usually from some mucilaginous loading.

It might be as well to note here that 100 per cent. dispersion and even a 50/50 formation on the wire, can be subsequently spoiled by that well-known snag amongst paper makers—tight draws at the wet end of the machine. When making water-marked papers which must be cut accurately to register, it is not a good thing to reletter an old dandy-roll which throws a fraction of an inch short, as, obviously, the wet paper must be pulled out to make it register properly, which again, obviously, gives the strength back to the machine direction; when, as is usual, the strength is in the machine direction already, this only tends to accentuate it. Five per cent. is usually allowed by dandy-roll manufacturers for stretch in ordinary papers. I have made large posts the 16½ in. way across the machine with rolls varying in circumference from 19½ to 20¼ in.; sometimes, the smaller circumference for a strong paper, and the larger for a fast free-running paper which stretches at least 5 per cent. through the action of the presses and the tension of its own weight going up to the second press. Naturally these papers have been criticised.

Drainage

I would like to show graphically where the drainage takes place when making a few papers at given speeds. The curves which show the approximate line of the water of drainage only taking place at a definite speed are based on observations from my experience when making these papers; they are near enough to give one a general practical impression. There is a tendency nowadays to measure the water of drainage under given tube-rolls in order to formulate a plan of campaign for running the same paper next time, and in order to speed up changing from one paper to another. There is much to be said for it and against this.

The first consideration is a paper where we have a 50/50 formation, as instanced in the foregoing remarks on beating, when the S.R. reading was 30 degrees, and the speed 350 feet per minute; the shake 450 strokes per minute, 5/16th in. throw at breast. I am submitting here that, to obtain a perfect formation, the drainage must take place similarly as shown in Fig. 1, when the furnish, S.R. degree, and speed remain constant, and that this is about the

maximum speed at which perfect formation can be obtained by ordinary drainage (it can be obtained at any slower speeds) on this particular paper.

We will now consider a fine rag writing, weighing 25¼ pounds large post, being made on the same machine where it is desirable to obtain as close-looking a sheet as possible. The furnish is 25 per cent. new shirt cuttings, 25 per cent fine linens, and 50 per cent. super-fines; there is added 5 per cent. of terra alba as loading, and three-fourth per cent. (dry weight) rosin and 2 per cent. alum as engine-sizing; the paper will weigh 27 pounds, large post after tub-sizing with gelatine. See Fig. 2. With a paper like this, one is driven right away back to the old-fashioned beaterman craftsman. The new cuttings might be nearly the same as the previous supplies, and yield to exactly the same treatment, but the fines are almost sure to be different; the fines are quite a necessary part of the furnish in order to obtain a solid velvety appearance and closeness in the finish, and general character of the paper. In most cases, they are dearer to put into the beater than new rags which would tend to give similar characteristics. The stuff is beaten fine and nicely "cleared out" by the refiner, and the S.R. reading at the chests is round about 30 degrees; one cannot guarantee 30 degrees S.R. with this furnish, as so much depends upon the state and quality of the rags. It may vary from 27 degrees to 33 degrees, yet the fineness of the fibers and the closeness of the grain of the shoot must not vary; and that is where the beaterman craftsman comes in, as he must be able to visualise the finished paper when feeling the stuff before emptying to the chest. So far, no testing machine is able to give results as accurately as the feel in the particular instance. The same thing applies to the machineman craftsman, for he must alter the consistency and speed of the machine accordingly; the bulk does not vary so much as one might be inclined to think, provided the beaterman knows his job thoroughly. While it is necessary to keep in mind that a fair production must be maintained, the main aim and object is to produce a definitely first-class article of its kind. Maximum dispersion is maintained, at a consistency of 1⅛ to 1¼ per cent. without heating the stock, as this has injurious results upon the ageing properties of this class of paper; the speed is 120 feet per minute, shake 400 strokes per minute, ⅜ in. throw at breast-roll. Fig. 2 shows approximately where the drainage takes place as the making water leaves the sheet on the wire; the paper is formed in 10 seconds, and there are about 60 to 65 effective shakes during information.

It is nearly impossible to apply a set of rules with figures to any part of the procedure, as far as the actual making of the paper is concerned (or to the subsequent sizing or finishing for that matter) unless one treats and mixes on a large scale the rags that go to make up the furnish. As the marketing demand for a paper of this description is not a big one, it is often not practical to mix more than 2 to 3 tons at a time, so the production depends upon the human factors all the time. Most papers of this kind are run fairly wet up to the dandy-roll, which puts the finishing touch on the formation, and has the tendency to rearrange some of the fibers lengthwise in the sheet again, as it evens them out. It is well to remember that the sheet in its very wet state really drives the dandy-roll, and, when a wiper is required to keep the roll clean, it adds to the retarding influence exerted on the fibers. Of course, the even-out enhances the look-through, though sometimes it will be found that the cross test is comparatively weaker to a slight extent.

Fig. 3 represents the water leaving a S.C. printing weighing 22 pounds demy, the furnish of which is 50 per cent. E. B. sulphite, 25 per cent, fine mechanical, and 25 per cent. news offcuts; loading, 22 per cent. china clay in finished paper; sizing 2½ per cent. rosin (dry weight) and 3 per cent. sulphate of alumina; 25 degrees S.R. at chests; consistency at head-box ¾ per cent.; speed 400 feet per minute; shake 450 strokes per minute, ¼ in. throw; the paper is formed about two yards before the first suction-box is reached.

Fig. 4 represents the water leaving a heavy kraft paper weighing 36 by 45=160 pound, or about 60 pound double crown; the furnish is 90 per cent. strong kraft pulp, and 10 per cent. kraft broke; no loading; sizing 3 per cent. rosin (dry weight), 4 per cent. sulphate of alumina; the S.R. at the chests is 28 degrees, and the consistency at the head-box 1⅜ per cent.; the speed is 100 ft. per min.; shake 350 strokes per min., ⅜ in. throw at breast. The stuff is not beaten to such a degree of wetness as would occur with a lighter substance, nor is all the length in the fibers maintained to enable and facilitate better drainage and adequate formation; the latter is rough and cloudy looking owing to poor dispersion caused by lack of dilution. Fully ¾ of the strength is in the machine direction of the sheet, and the "make" finishes over the suction-boxes. While the resultant paper is quite serviceable, it leaves a great deal to be desired.

Fig. 5 represents a fast filter paper, weighing 24 pounds large post; the furnish is 50 per cent. new white toweling, 25 per cent. specially selected fine linens, and 25 per cent. specially selected fines only. The beating tackle is especially sharpened, and the treatment in the mill is somewhat drastic; 17 degrees S.R. at chests; consistency at head-box ⅓ per cent.; speed 100 feet per min.; shake 450 strokes per min., ⅜ inch throw. The paper is actually formed, and nearly all the drainage has taken place, by the time the sixth tube-roll is reached. This is a very trying paper to make, and one must employ a physical test worker continuously at the end of the machine. It might be argued that this paper is run at too slow a speed, but it must be remembered that it must also be run strictly to specification.

There is a great deal more one could say about the general making conditions of these papers, and how different factors would alter the approximate drainage lines, but I am afraid the paper is quite long enough now to give time for discussion. In conclusion, I would like to express my appreciation to the directors of Messrs. Hollingsworth & Co. for permission to read this paper.

A Significant Change in German Pulp

A significant change has taken place in the German wood pulp industry within the last nine months, according to a report from W. S. Jesien, American Consulate-General, Frankfort. Leading German wood pulp concerns in 1933 were wrestling with business difficulties with some threatened with insolvency. A prominent concern the previous year had had to reduce its capital stock in order to patch up shattering losses. The firm mentioned is now considering resumption of dividend payments, and there has been a noticeable upward trend in wood pulp stocks in general. Although much secrecy surrounded the transactions of the international sulphite cartel at its meeting in Stockholm in September, it is now generally understood that production quotas were raised to 75 per cent of digester capacity as against 70 per cent. The German group was among the most intensely interested in greater freedom of action, and it is currently reported that German exports of sulphite pulp were released from cartel restrictions.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Alkaline Processes

Optimum Conditions for Production of Wrapping Paper and (Packing) Carton. L. A. Kantor. Bumazhnaya Prom. 13, No. 5:26-36 (1934); C. A. 28:6306.—Halfstuff for production of wrapping paper (100 g./sq. m. and over) was obtained in 72 percent. yield (based on absolutely dry straw) by cooking 2.5 hours at 4 atmospheres pressure with 10 percent. calcium oxide, reworking 15 minutes in a kollergang, washing 20 minutes and beating 1 hour to 15° Schopper-Riegler freeness. Light wrapping paper (about 40 g./sq. m. resulted (60-62 percent. yield) from two-stage cooking 1 hour at 0.8-0.9 atmosphere and 2 hours at 4 atmospheres with calcium hydroxide, with subsequent washing, screening (screen mesh 8 mm.) and beating 2-2.25 hours to 30° freeness. Halfstuff for packing carton was obtained in 72 percent. yield by cooking 2.5 hours at 4 atmospheres with 10 percent. calcium oxide and (1) reworking 15 minutes in the kollergang to 8° freeness, then washing 20 minutes and beating 45 minutes to 45° freeness; (2) reworking 30 minutes in the kollergang to 14° freeness, then washing 15 minutes and beating 15 minutes to 16° freeness; (3) eliminating the kollergang and prolonging the beating but with an excessive consumption of energy. Carton (stamping type) with double tensile strength was obtained by stage-cooking 1 hour at 0.8 atmosphere and 2 hours at 4 atmospheres with 20 percent. calcium oxide, or preferably with 18-20 percent. calcium oxide and 1-2 percent. sodium hydroxide and (1) reworking 15-20 minutes in the kollergang to 12° freeness, washing 1 hour and beating 1.5 hours to 24-26° freeness (65-68 percent. yield of halfstuff); (2) washing by screening (mesh 8 mm.) and beating 1.5 hours to 28° freeness (60 percent. yield).—C. J. W.

Production of Halfstuff. M. F. Martuinov. Materialui Vsesoyuz. Nauch.-Issledovatel. Inst. Bumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 3:115-128; C. A. 28:5662.—Aspen cooked 3 hours at 80° and birch at 120° with 8 percent. sodium hydroxide (1.33 percent. concentration) produced halfstuffs with good mechanical properties. Birch gave stronger stock than aspen. The dark products cannot be bleached with sodium bisulphite, while bleaching with chlorine is too costly.—C. J. W.

Two-Stage Method of Production of Halfstuff and Cellulose from Straw. P. S. Larin. Materialui Vsesoyuz. Nauch.-Issledovatel. Inst. Bumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst Paper Cellulose Ind.) 1932, No. 2:16-42; C. A. 28:5662.—By steeping shredded straw with 7 parts of 1-2.5 percent. sodium hydroxide at room temperature for 4-12 hours, 73.3-84.15 percent. of inferior grade of yellow halfstuff and wrapping paper was obtained. The consumption of 7-12 per cent. of sodium hydroxide renders the process unprofitable. The laboratory and semi-commercial scale experiments with the production of straw halfstuff and hard and soft pulp by two-stage process consisted in steeping straw either cold or hot with 7 parts of sodium hydroxide and then steaming the pressed-out mass under pressure. A yield of 64 percent. of halfstuff resulted with 1 percent. sodium hydroxide by steeping 8-10 hours at 20° or 4-5 hours at 40° or 2-25 hours at 60° and steaming 2 hours at 140° or 40 minutes at 160° or 15 minutes at 175°. By similar procedures with 2.5 percent. sodium hydroxide 50 percent. of hard pulp was obtained and 43-46 percent. of soft pulp by steaming 10-30 minutes longer or by working with a liquor in which 25 percent. of sodium hydroxide was substituted by sodium sulphide. In all cases 27 percent. of sodium hydroxide was recovered. The halfstuff is unbleachable. The bleached hard and soft pulps in their chemical and mechanical properties closely resemble the products obtained by the usual alkaline and sulphate cooking. The unbleached pulp is considerably lighter in color than that produced by the common method and can be used without bleaching, either alone or in mixtures with a bleached pulp, in the production of better grades of paper. The yield of cellulose is increased 2-3 percent. and the time of cooking is reduced 2.5-3 times. By using dilute alkali in proportion of 7:1 instead of 2:1, 30 percent. of the component parts of straw is removed with the resulting greater digester output.—C. J. W.

Straw Pulp by the Sudakov-Larin Method. M. P. Resh and A. P. Petrov. Materialui Vsesoyuz. Nauch.-Issledovatel. Inst. Bumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 3:3-11; C. A. 28:5662.—Paper produced from 100 percent. of the straw pulp prepared by Larin (preceding abstract) showed better mechanical properties than the paper obtained from sulphate and sulphite-sulphate straw pulp, and can be used for the production of writing, printing, cigarette, condenser and other fine resorts of paper.—C. J. W.

Acid Alkalin Method of Producing Cellulose from Hydrophytes (*Cladophoracaea*). N. A. Rozenberger. Materialui Vsesoyuz. Nauch.-Issledovatel. Inst. Bumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 3:27-31; C. A. 28:5663.—The experiments with pulping of *Cladophora fracta* (Western Siberia), containing 40 percent. ash, resulted in a poor yield of cellulose and a low grade of paper with prohibitive costs of production.—C. J. W.

Production of Sulphate Pulp and Paper from Larch (Larix Sibirica) and Gummed Pine Stumps. N. A. Rozenberger. Materialui Vsesoyuz. Nauch.—Issledovatel. Inst. Baumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 4:40-49; C A. 28:5661.—Laboratory experiments in comparative sulphate pulping of Siberian larch, spruce and extracted pine stumps and roots (containing 16-25 percent. gum resin) at 170° for 4 hours (actual cooking) produced, respectively, 33.7-44.2, 36.8-44.9 and 31.5-40.9 percent. pulp. Cooking 12 minutes at 195-205° resulted in a considerable economy of time and reagents and apparently equally good yields and qualities of pulp. The consumption of chlorine in bleaching larch and spruce is about the same, and for spruce is about 20 percent. higher. Mechanical properties of spruce and larch are almost identical, capable of produc-

ing equally strong kraft paper, while those of stump kraft paper are 12-15 percent. lower. The chemical constants of spruce and larch are closely related, while stump pulp contains more lignin and less alpha-cellulose. The results show that by the usual sulphate pulping of larch there can be produced kraft, cable and bleached paper equal to spruce. Extracted pine stumps and roots are suited for production of kraft and cable paper.—C. J. W.

Use of Turf (Peat) in the Production of Paper and Carton. M. Ya. Robinov. Materialui Vsesoyuz. Nauch.-Issledovatel. Inst. Bumazh. Tzelluloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 3:81-104; C. A. 28:5664.—Commercial grades of paper and carton were obtained by the use of 20-70 percent. of top layer turf. Turf steamed or cooked with sodium hydroxide gave stronger paper than the crude product and turf cooked with water produced a stock lighter in color. The substitution of turf for waste stock or mechanical pulp resulted in somewhat lower mechanical properties of paper. Turf was cooked about 2 hours at a maximum of 2 atmospheres with 3.5 percent. sodium hydroxide.—C. J. W.

Use of Turf in the Production of Paper. Frantz Khyuter. Vsesoyuznuii Nauch.-Issledovatel. Inst. Bumazhnoi Tzellyuloznoi Prom. Materialui (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1933, No. 2:90-96; C. A. 28:5981.—Attempts to produce better grades of paper with turf gave negative results. By reworking turf in the cold it was possible to obtain somewhat better results. With chlorine subsequent treatment with calcium hydroxide a product was obtained which, when bleached with calcium hypochlorite, produced with 30 percent. unbleached cellulose a light colored stock without black spots; it is suitable for low-grade newsprint.

Schemes for Refining Flax and Hemp Chaff for Production of High Grade Rag Halfstuff. I Kulev and N. Timasheva. Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Central Sci. Research Inst. Paper Ind. Trans) 1933, No. 4:33-86; C. A. 28:6564.—A preliminary communication.—C. J. W.

Halfstuff Problem from the Russian View Point. Finnish Paper and Timber J 16, No. 14:618,620, 622-624 (July 31, 1934).—The article discusses two recent Russian processes for obtaining high cellulose yields, the Sudakov process employing 1.2-2 percent. cold sodium hydroxide which is in use in several Russian mills and Sokolovskii's method with milk of lime which is still more or less in the experimental stage. The wood from deciduous trees, chiefly birch and aspen, is used in both cases; Sokolovskii experimented also with spruce waste. A list of Russian literature is given.—C. J. W.

Segerfelt's Method. R. Blomvik. Papir-J. 22, No. 10:113-114; No. 12:138-140 (June 30, Aug. 15, 1934).—A very severe criticism of what the author considers the impossible features covered by Segerfelt's Swedish patent No. 73.406 (and by several other foreign patents) for digesting sulphate chips with very concentrated liquors.—C. J. W.

Concerning a New Method for the Decomposition of Spruce Wood. Oskar A. Muller. Papier-Fabr. 32, No. 29:329-32; No. 30:338-42; No. 31:347-51; No. 32:354-58 (July 29-Aug. 12, 1934).—The decomposition takes place in the usual manner by chlorination of the moistened, diminuted wood by means of chlorine gas and then extraction with alcohol at higher temperatures in the presence of a strong mineral acid. The incrustants are isolated from the extract after the recovery of the alcohol and after the filtration of the cellulose. The raw chlorine lignin is described in relation to its appearance, solubility, the presence of carbohydrates, the decomposition through oxydation, alkaline treatment and through destructive distillation. Then a discussion of methylation and an analytical investigation of the lignin as well as the methylated products. Finally a thorough investigation of the alkali smelt and the ether extract (phenol derivative) obtained therefrom. —J. F. O.

Evaluation of Southern Pines for Pulp Production. III. Shortleaf Pine (Pinus Echinata). Mark W. Bray and Benson H. Paul. Paper Trade J. 99, No. 5:38-41 (Aug. 2, 1934).—Chemical analysis of three sylviculturally different lots of short leaf pine, comprising both slow- and rapid-growth wood and slow-growth wood both with and without heartwood, showed no outstanding evidence adverse to the production of good quality pulps of average yields. The yields of kraft pulp, of cellulose and of alpha-cellulose per cord decreased with increase in taper and growth-rate.—A.P.-C.

Changes in the Structure of Wood Fibers During Cooking and Bleaching. Charles H. Carpenter and Harry F. Lewis. Paper Trade J. 99, No. 3:37-42 (July 19, 1934).—A description of the changes in the structure of wood fibers as the result of cooking and bleaching operations, which were followed by means of the swelling of the fibers caused by cuprammonium solutions.A.P.-C.

The Pulping of Douglas Fir By Ammonia Base Liquor. H. K. Benson, R. P. Erwin, J. R. Henrickson and J. A. Tershin. Paper Trade J. 99, No. 12:87-89 (Sept. 20, 1934).—A series of experimental cooks in ammonia base liquor showed that young Douglas fir closely parallels the commercial spruce and hemlock pulps, that Douglas fir pretreated with a 5 percent. ammonia solution approaches spruce and hemlock pulp, and that pulps made of old Douglas fir are of a distinctly lower order of quality. —A.P.-C.

Production of Alpha-Cellulose. José M. Estape. Fr. pat. 759,690, (Feb. 7, 1934).—Chemically pure alpha-cellulose is made by digesting fibers obtained from *Arundo donax* (Castille canes), *Gynerium sacharoides* (Carrizo canes), *Gynerium sagitatum* (Brava canes), Malaca canes, etc., in an alkaline solution containing caustic soda, sodium sulphide, sodium acetate or ammonia, or, preferably, a mixture of these. The resulting pulp is washed with steam or hot water, bleached and subjected to an electrolytic treatment in a bath containing sodium chloride, ammonia or caustic soda.—A.P.-C.

Studies on the Alkaline Pulping Processes. S. I. Aronovsky. Paper Ind. 16:413-419 (Sept., 1934).—Aspen wood sawdust was cooked with water only, sodium carbonate, sodium sulphate, sodium thiosulphate, sodium sulphite, sodium sulphide and caustic soda (each reagent was used at concentrations equivalent to 20% and 40%, respectively, of sodium carbonate on the oven-dry wood). Cooks were carried out for 2 and 12 hours at 170° and 186° C. The results are tabulated and discussed.—A.P.-C.

Preparation of Raw Stock from Straw Without Pressure. M. Resch, L. Skulskaja and A. Rubenkina. Zellstoff u. Papier 14, No. 2:56-57, (Feb., 1934).—The author first briefly reviews earlier experiments on the cooking of straw without pressure and then gives the results and experimental data of cooks with different chemicals. Caustic soda is preferable to sodium carbonate or calcium hydroxide. The smelt, after causticization, was used with good results, the composition being about 68 per cent. sodium carbonate, 13 percent. sodium sulphide, 4 percent. sodium sulphite and 4 percent. sodium thiosulphate.—J. F. O.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 22, 1934

CIGARETTE PAPER

American Tobacco Co., Schodack, Havre, 730 cs.; Standard Products Corp., Lafayette, Havre, 58 cs.

WALLPAPER

Globe Shipping Co., A. Ballin, Hamburg, 7 bls.; do, A. Ballin, Bremen, 14 cs., 3 bls.; S. K. Lonegren, Kungsholm, Gothenburg, 10 cs.

WALLBOARD

Treetex Corp., Kungsholm, Gothenburg, 1,280 bdls.

NEWSPRINT

——, Drammenfjord, Oslo, 134 rolls; Perkins Goodwin & Co., A. Ballin, Hamburg, 278 rolls; Brooklyn Times, Kungsholm, Gothenburg, 465 rolls; International Paper Co., Cornerbrook, Dalhousie, 6,125 rolls; Bank of Montreal, Cornerbrook, Cornerbrook, 174 rolls; J. Madden Corp., Scanstates, Kotka, 869 rolls; Lunham & Reeve, Inc., by same, 148 rolls.

PRINTING PAPER

Steiner Paper Corp., A. Ballin, Bremen, 2 cs.; J. Madden Corp., Scanstates, Wiborg, 133 pkgs.

WRAPPING PAPER

Wilkinson Grey & Co., Kungsholm, Gothenburg, 18 bls., 25 rolls; Standard Products Corp., Black Hawk, Antwerp, 40 rolls; F. C. Strype, by same, 2 cs.; Van Oppen & Co., Pr. Monroe, Genoa, 15 cs.; Steiner Paper Corp., Statendam, Rotterdam, 11 bls.

FILTER PAPER

C. Schleicher & Schull Co., Inc., A. Ballin, Hamburg, 13 cs., 1 bl.; A. W. Fenton, Inc., A. Ballin, Bremen, 100 bls.; A. Giese & Son, Olympic, Southampton, 93 bls.; H. Reeve Angel & Co., Inc., Ascania, Southampton, 7 cs.

DRAWING PAPER

Artists Brush & Color Co., American Farmer, London, 2 cs.; H. Reeve Angel & Co., Inc., Ascania, Southampton, 1 cs.

METAL COATED PAPER

K. Pauli Co., A. Ballin, Bremen, 33cs.;

BASIC PAPER

Globe Shipping Co., A. Ballin, Bremen, 24 cs.

SURFACE COATED PAPER

Boucher Cork Co., A. Ballin, Hamburg, 1 cs.; Globe Shipping Co., A. Ballin, Bremen, 66 crates, 1 cs.; Gevaert Co. of America, Black Hawk, Antwerp, 39 cs.

PHOTO PAPER

——, A. Ballin, Hamburg, 2 cs.; J. J. Gavin, Olympic, Southampton, 4 cs.

TRACING PAPER

Titan Shipping Co., A. Ballin, Hamburg, 2 cs.; C. Bruning Co., A. Ballin, Bremen, 3 cs.

TRANSFER PAPER

Fuchs & Lang Manfg. Co., A. Ballin, Hamburg, 8 cs.

DECALCOMANIAS

Sellers Transportation Co., A. Ballin, Hamburg, 7 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Georgic, Liverpool, 4 cs. (duplex).

COLORED PAPER

International F'd'g Co., A. Ballin, Hamburg, 9 cs.

COVER PAPER

P. H. Petry & Co., A. Ballin, Bremen, 9 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Georgic, Liverpool, 4 cs.; Keer Maurer Co., Pr. Monroe, Genoa, 2 cs.

IVORY BOARD

Safran & Glucksman, Inc., Statendam, Rotterdam, 17 cs.

BASIC BOARD

——, Statendam, Rotterdam, 21 cs.

MISCELLANEOUS PAPER

The Borregaard Co., Inc., Kungsholm, Gothenburg, 757 rolls, 25 bls.; Meadows Wye & Co., American Farmer, London, 2 cs.; Keller Dorian Paper Co., Pr. Monroe, Marseilles, 8 cs.

RAGS, BAGGINGS, ETC.

Banco Coml. Italiane Trust Co., Ida, Trieste, 98 bls., bagging; Darmstadt Scott & Courtney, by same, 87 bls. bagging; Royal Manfg. Co., American Importer, Liverpool, 50 bls. cotton waste; ——, by same, 107 bls. cotton waste; E. Butterworth & Co., Inc., by same, 13 bags paper stock; Chase National Bank, Capulin, Dundee, 85 bls. paper stock; ——, by same, 196 bls. paper stock; G. W. Millar & Co., by same, 26 bls. paper stock; Castle & Overton, Inc., by same, 47 bls. paper stock; Darmstadt Scott & Courtney, Black Hawk, Antwerp, 112 bls. bagging; Atlantic F'd'g Co., by same, 20 bls. cotton waste; Royal Manfg. Co., by

same, 78 bls. cotton waste; N. Schwab & Son, by same, 131 bls. cotton waste; ——, Statendam, Rotterdam, 39 bls. bagging; J. J. Ryan & Son, Inc., by same, 87 bls. cotton waste; E. J. Keller Co., Inc., American Legion, ——, 36 bls. paper stock; do, Excambion, ——, 79 bls. paper stock; do, Pr. Monroe, ——, 35 bls. bagging.

OLD ROPE

A. S. Wilson, Inc., New York City, Bristol, 64 coils; Banco Coml. Italiane Trust Co., Habana, Pasajes, 346 coils.

CHINA CLAY

——, New York City, Bristol, 25 casks; English China Clays Sales Corp., Georgic, Liverpool, 206 bags, 9 tons.

WOOD PULP

Irving Trust Co., Drammensfjord, Oslo, 150 bls. mechanical pulp; E. J. Keller Co., Inc., A. Ballin, ——, 331 bls. wood pulp, 52 tons; J. Andersen & Co., Kungsholm, Gothenburg, 375 bls. sulphite; Price & Pierce, Ltd., by same, 175 bls. sulphite; do, by same, 325 bls. wood pulp; The Borregaard Co., Inc., by same, 5 bls. chemical pulp; Perkins Goodwin & Co., by same, 127 bls. sulphite; ——, Ida, Trieste, 270 bls. wood pulp; The Borregaard Co., Inc., Tyrifjord, Sarpsborg, 740 bls. sulphite; J. Andersen & Co., by same, 300 bls. sulphite; do, Tyrifjord, Greaker, 1400 bls. sulphite; Irving Trust Co., Tyrifjord, Oslo, 450 bls. mechanical pulp; Lagerloef Trading Co., Scanstates, Wiborg, 1,930 bls. sulphite, 359 tons; Castle & Overton, Inc., by same, 1,589 bls. wood pulp, 314 tons; Lagerloef Trading Co., Scanstates, Kotka, 141 bls. sulphate, 23 tons; do, by same, 165 bls. sulphite, 27 tons; N. Y. Trust Co., Black Eagle, Rotterdam, 270 bls. wood pulp, 54 tons; E. J. Keller Co., Inc., Pr. Harding, ——, 310 bls. wood pulp.

WOOD PULP BOARDS

Johaneson Wales & Sparres, Inc., Scanstates, Wiborg, 46 rolls, 11 tons; Lagerloef Trading Co., by same, 151 bls., 20 tons; do, Scanstates, Kotka, 61 rolls & 50 bls., 28 tons.

BOSTON IMPORTS

WEEK ENDING DECEMBER 22, 1934

D. C. Andrews & Co., Georgic, Liverpool, 8 bls. bowl paper; G. F. Malcolm, Inc., by same, 56 cs. tissue paper; E. J. Keller Co., Inc., Augsburg, ——, 338 bls. paper stock; Gottesman & Co., Inc., City of Fairbury, Sweden, 2,000 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 22, 1934

J. Wallworth Sons, Inc., Capulin, Dundee, 19 bls. paper stock; Chase National Bank, Capulin, London, 59 coils old rope; Lagerloef Trading Co., Scanstates Helsingfors, 124 bls. sulphite, 25 tons; do, Scanstates, Wiborg, 610 bls. sulphite, 109 tons; do, by same, 3,839 bls. sulphate, 657 tons; do, by same, 178 bls. mechanical pulp, 35 tons; do, by same, 15 bls. wood pulp boards, 29 tons; Castle & Overton, Inc., by same, 146 bls. wood pulp, 29 tons; J. W. Hampton, Jr., Inc., Scanstates, Kotka, 153 rolls newsprint.

WILMINGTON IMPORTS

WEEK ENDING DECEMBER 22, 1934

Lagerloef Trading Co., Scanstates, Wiborg, 6,520 bls. sulphite, 1,304 tons; do, Scanstates, Kotka, 669 bls. sulphite, 133 tons.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 22, 1934

Gottesman & Co., Inc., Griesheim, Sweden, 500 bls. wood pulp.

NEWPORT NEWS IMPORTS

WEEK ENDING DECEMBER 22, 1934

Gottesman & Co., Inc., Griesheim, Sweden, 3,125 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING DECEMBER 22, 1934

Darmstadt Scott & Courtney, Black Hawk, Antwerp, 50 bls. bagging; Atterbury Bros., Inc., Tortugas, Drammen, 2,000 bls. chemical pulp; do, by same, 150 bls. sulphite.

Set-Up Paper Box Code Authority Proposes Termination of Budget Exemptions

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 26, 1934—The Code Authority for the set-up paper box manufacturing industry has petitioned the National Industrial Recovery Board for termination of exemption of some members of the industry from contributions to the code budget. The exemption is granted by Administrative Order X-36, which exempts members of any industry or trade from contributions to any code other than that covering their main line of business.

The Code Authority said in its petition that some manufacturers under other codes are making large numbers of set-up paper boxes without contributing to the set-up paper box industry's code budget or contributing to any code on their paper box production. It also stated that unless the relief sought is granted it will be impossible for the Code Authority for the set-up paper box manufacturing industry to collect sufficient funds for code administration purposes. The application asks that the order of termination be made retroactive to the effective date of the approved rate of assessment, or the date when members accepted the benefit of the services of the Code Authority, or otherwise assented to the code.

New Greene Tweed Catalog Out

The new catalog of Greene, Tweed & Co., manufacturers, importers and exporters of mill supplies and contractors' specialties, of 109 Duane street, New York, contains a wealth of valuable information.

Profusely illustrated and spirally bound this attractive booklet contains many features of unusual merit, including "The A B C of Packing," with charts; "Electrical Data"; "Common Names of Chemical Substances," etc.

Copies of this catalog may be obtained upon application.

Peoria Paper House Formed

The Peoria Paper House, 300 Main street, Quincy, Ill., has incorporated with 4,000 shares of common stock. The incorporators are MacAuley Irwin, E. A. Damhorst and H. G. Celklaus. The purpose of the company is to wholesale, distribute and manufacture, purchase, store, repair and sell direct or on commission, paper, paper products, floor coverings, etc.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, December 26, 1934.

Trading in the local paper market was light during the past week, due to the holidays and the inventory period. However, the volume of business transacted during the closing months of the year far exceeded last year's record. Sales forces of the leading paper organizations are optimistic over the future outlook.

The newsprint paper market is exhibiting a stronger undertone. Manufacturing operations in Canada, Newfoundland and the United States are being maintained in sufficient volume to take care of current requirements. Stocks at the mills are below normal. The price situation for the coming year is decidedly firmer.

Demand for the various grades of fine paper is moderately active. Prices are holding to formerly quoted levels. Tissues have been in excellent request during the holiday season. Coarse wrapping paper has also shared in the Christmas trade. The paper board market continues quiet, with prices steady to firm.

Mechanical Pulp

The position of the ground wood pulp market is practically unchanged. Production of mechanical pulp, both in North America and abroad, is still keyed to consumption and accumulations are not excessive. The statistical condition of the industry is considered sound. Prices are holding to schedule.

Chemical Pulp

Steadiness prevails in the chemical pulp market. Demand for the various grades of domestic and foreign chemical pulp is fairly active for the season. Bleached sulphite is still quoted at from $2.75 to $2.85 and all prime easy bleaching at $2.25 per 100 pounds, on dock, Atlantic, Gulf and West Coast Ports.

Old Rope and Bagging

The old rope market is marking time. Domestic and foreign old manila rope is moving rather slowly. Small mixed rope is dull. The bagging market is showing signs of improvement. Gunny bagging is firm, with offerings limited. Scrap bagging is fairly steady. Roofing bagging is in seasonal request.

Rags

Conditions in the domestic rag market are gradually improving. New cotton rags are more active. Export demand for No. 1 white shirt cuttings is fairly persistent. The outlook for old rags and roofings is encouraging for the forthcoming year. The imported rag market is still affected by the foreign exchange situation.

Waste Paper

The paper stock market is irregular. Following the resignation of the New York Code Authority for the Waste Paper Trade, announced last week, quotations on folded news and No. 1 mixed paper became easier, although the Government emergency order is still in force. The higher grades of paper stock are fairly steady.

Twine

Demand for the various varieties of twine has been excellent during the closing months of the year. Close observers of the twine market express confidence in the future. Despite the usual keen competition for desirable orders, prices are holding to former levels, and reports of concessions are infrequent.

G. W. Sisson, Jr., Speaks on Government

[FROM OUR REGULAR CORRESPONDENT]

MASSENA, N. Y., December 24, 1934—George W. Sisson, Jr., president of the Racquette River Paper Company, in an address last week before members of the Chamber of Commerce, declared that the cornerstone of American government and life is the civil liberty of the individual citizen. "We do not derive our civil liberty nor our right to do business from government; we who are in possession of civil liberty and the right to do business have instituted a government to protect and to defend them," he said. It is his opinion that the most pressing question that now confronts the American people, the question that underlies and conditions all problems of reconstruction and advance, is whether we shall go forward by preserving those American principles and traditions that have already served us so well or whether we shall abandon those principles and substitute for them a state built not upon the civil liberty of the individual but upon the plenary power of organized government.

"The sure mark of the reactionary is unwillingness to make use of the teachings of past experience or to read the lessons of history and apply them to the problems of today," Mr. Sisson declared. "The real reactionary, who is always an egotist, insists that his own desires and ambitions take precedence over anything that the rest of mankind may have said or done. The true progressive on the other hand is he who carefully reads history and examines the experience of mankind in order to see what lessons have been learned, what mistakes need not be repeated, and what principles of organization and conduct have established themselves as sound and beneficent."

He concluded with the declaration that the progressive builds a new and consistent structure to meet the needs of today upon the experience of yesterday. America will be saved, he said, not by those who have only contempt and despite for her founders and history but by those who look with respect and reverence upon the great series of happenings in her past.

Paperboard Association Moves

CHICAGO, Ill., December 24, 1934—The National Paper Board Association announces that it has changed its address to 80 East Jackson Boulevard, room 1513, phone Harrison 5762. The offices of the Paperboard Code Authority have also been moved to the same address.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 26, 1934.

BLANC FIXE.—Demand for blanc fixe is moderately active. Prices are holding to formerly quoted levels. The pulp is selling at from $42.50 to $45 per ton, in bulk; while the powder is offered at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is practically marking time until after the holidays. The contract movement is seasonal. Prices are steady and unchanged. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is listless. Domestic standard ground is still quoted at 9¼ and finely ground at 10 cents per pound; while Argentine standard ground is offered at 13½ and finely ground at 14 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Prices are holding to schedule without difficulty. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is displaying strength. Contract shipments are moving regularly. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Paper mill demand for chlorine is fairly persistent. The contract movement is well up to average. Prices remain unchanged. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is quiet. Paper making gum rosin is still quoted at $4.50 and FF wood rosin at $4.30 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.60 per 100 pounds, in tank cars, at works.

SALT CAKE.—Supplies of salt cake are moving into consumption in good volume. Prices are firm. Salt cake is quoted at from $12 to $14 and chrome salt cake at from $12 to $12.50 per ton, at works. Imported salt cake is selling at from $12 to $12.50 per ton, on dock.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Contracts for the forthcoming year are being booked freely. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Business in the starch market is fairly active. Shipments against contract are going forward regularly. Prices are steady. Special paper making starch is still quoted at $3.75 per 100 pounds, in bags; and at $3.84 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is maintaining its strength. Prices are holding to schedule. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads the quotation is $21 per ton.

TALC.—Conditions in the talc market are practically unchanged. Prices are generally holding to schedule. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.35
Coated Litho	5.90	@	6.35
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	22.00	@	24.00
Dry	23.00	@	24.00
(F.o.b. Mill)			
No. 1 Domestic and Canadian	20.00	@	26.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—
(On Dock, Atlantic Ports)			
Kraft No. 1	1.65	@	1.75
Kraft No. 2	1.50	@	1.60
(F.o.b. Pulp Mill)			
Kraft Domestic	1.60	@	2.25
(Delivered)			
Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.10	@	1.25
No. 2	.80	@	.85
No. 3	.70	@	.75
No. 4	.65	@	.70
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag.	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.65	@	.70
Strictly Folded	Nominal		
No. 1 Mixed Paper	Nominal		

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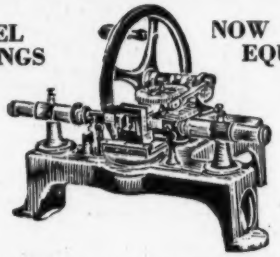

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Twines
(F. o. b. Mill)

Coarse Polished—			
India	.11¼	@	.13¾
Belg. White Hemp	.12½	@	.15¾
India Compress	.11¾	@	.12¼
Fine Polished—			
Fine India	.16	@	.20
Special	.16	@	.18
B. C.	.25½	@	.27½
Unpolished—			
Box	.10	@	.10½
Paper Makers	.07	@	.11½
Tube Rope	.08	@	.13½
Wall Paper	.09	@	.12½
Wrapping	.12	@	.17
Special	.12	@	—
Soft Fiber Rope	.10¼	@	.10¾

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.11
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¾	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	41.00	@	—
Sheets, open	46.00	@	51.00
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.50	@	.55
Overissue News	.60	@	.70
Old Newspapers—			
No. 1	.50	@	.55
Mixed Papers—			
No. 1	.30	@	.35
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(Delivered Philadelphia)

Bonds	.05-9/10	@	.38
Ledgers	.06 9/10	@	.40
Writings—			
Fine No. 3	.05	@	.06
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Book, M. F.	.05¼	@	.06¾
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06½	@	.09
Coated Lithograph	.06¾	@	.08½
Label	.07	@	.11
No. 1 Jute Manila	6.25	@	—
Manila Sul., No. 1	5.25	@	—
Manila No. 2	3.00	@	—
No. 1 Kraft	5.00	@	—
Southern Kraft	4.75	@	—
Common Bogus	.03	@	.04½
News Print Rolls	46.00	@	55.00
Straw Board	40.00	@	45.00
News Board	50.00	@	—
Chip Board	45.00	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.66
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01½	@	.02
Blue Overall	.03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.00	@	1.10
No. 1 Books, heavy	.55	@	.60
No. 1 New Manila	1.35	@	1.40
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.15	@	1.20
No. 1 Mixed Paper	.32½	@	—
Straw Board Chip	.30	@	—
Binders Board Chip	.30	@	—
Corrugated Board	.50	@	—
Overissue News	.60	@	—
Old Newspapers	.42½	@	—

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.07¾	@	.11
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.05
No. 2 Kraft	.03¾	@	.04½

(F. o. b. Boston)

Southern Kraft	.03¾	@	.04½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	44.50	@	—
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Chip Board (Creasing)	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	57.50	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.25
No. 1 Soft White	1.75	@	2.00
No. 2 Mixed	.80	@	.85
Solid Ledger Books	1.75	@	—
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.95	@	1.05
No. 1 Books, heavy	.70	@	.80
No. 1 Books, light	.55	@	.65
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.65	@	.70
White Blank News	1.10	@	1.15
No. 1 Kraft	.85	@	.90
No. 1 Mixed Papers	.32½	@	—
Print Manila	.45	@	.50
Overissue News	.45	@	.50
Old Newspapers	.42½	@	.45
Box Board Chips	..	@	.25
Corrugated Boxes	.32½	@	.40
Screening Wrappers	.50	@	.60

Bagging
(F. o. b. Boston)

Manila Rope—			
Foreign	1.75	@	1.90
Domestic	1.90	@	2.00
Transmission Rope	.90	@	1.00
Mixed Strings	.17½	@	.30
Jute Rope	1.35	@	1.40
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.15	@	1.20
Bleachery Burlap	4.00	@	4.50
Scrap Burlap	1.05	@	1.10
Scrap Sisal	1.00	@	1.10
Scrap Sisal for Shredding	1.10	@	1.25
Wool Tares, heavy	1.25	@	1.30
New Burlap Cuttings	1.45	@	1.50
Australian Wool Pouches	2.00	@	2.25
Heavy Baling Bagging	1.40	@	1.50
Paper Mill Bagging	.90	@	1.10
Bagging No. 2	.50	@	.55

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1	.05½	@	.06
New White No. 2	.03½	@	.04
Silesias No. 1	.04	@	—
New Black Silesias	.02½	@	.03
New Unbleached	.05½	@	.06
Blue Cheviot	—	@	4.65
Fancy	.0185	@	.0195
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	—	@	.03½
New Black, soft	.04	@	.04
Khaki Cuttings	.03¼	@	.03½
O. D. Khaki	.03	@	.03¼
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.06¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	3.00
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Twos and Blues	1.25	@	1.50
Thirds and Blues			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Black Stockings	2.50	@	3.00
Roofing Stock			
No. 1	.75	@	.80
No. 2	.70	@	.75
No. 3	.55	@	.60

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.85	@	.95
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.00	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.55	@	1.60
Old Linsey Garments	1.25	@	1.35

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¼	@	—
No. 2 Colored	.09	@	.10
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	@	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.22½	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	39.50	@	—
Sheets	44.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	50.00	@	55.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.30
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.50
Printed Manilas	.70	@	.60
Kraft	1.25	@	1.50
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.60	@	—
No. 1 Mixed Paper	.50	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06	@	.06¼
Fancy Shirt Cuttings	.02¼	@	.02½

JAN 2 1935

PAPER TRADE JOURNAL

Vol. XCIX DECEMBER 27, 1934 No. 26

Greetings!

The tolling of New Year's Bells will usher in the 171st birthday of the Geigy organization and the 79th anniversary of its participation in the manufacture of synthetic dyestuffs.

It was almost immediately after the discovery of Mauve by Perkins that Geigy entered the dyestuff field, contributing some of the outstanding dyestuffs used in all industries.

This old, but modern, organization takes this opportunity to extend to you its heartiest greetings for a very prosperous and Happy New Year with an assurance of its sincerest cooperation and earnest servicing of your business.

May good fortune and good business be yours during 1935.

GEIGY COMPANY, INC. NEW YORK

89-91 BARCLAY STREET

Sole Selling Agents in U. S. & Canada for J. Geigy S. A., Basle

Boston *Portland, Ore.* *Philadelphia* *Cincinnati*
Columbus, Ga. *Providence* *Toronto* *Charlotte, N. C.*

In Great Britain—The Geigy Colour Co., Ltd.
National Buildings, Parsonage, Manchester

DYESTUFF MAKERS GEIGY SINCE 1758

Established 1764

Season's Greetings

At this season of the year our thoughts revert to those whose co-operation, loyalty and friendship in the past have so materially assisted us.

To You All, the Makers of *TENAX FELTS* extend these greetings:

A Merry Christmas and a Happy and Prosperous New Year

LOCKPORT FELT COMPANY
NEWFANE, N. Y.

At the Turn of the Year

The close of 1934 and the approaching new year provide an opportune time for pulp and paper mills to go over machinery thoroughly to ascertain what units have become obsolescent and should be replaced in 1935. In mapping this program for the coming year, careful consideration should be given to the fact that it is more economical and convenient to install modern equipment from time to time than to wait until there is a great amount of replacement to be done.

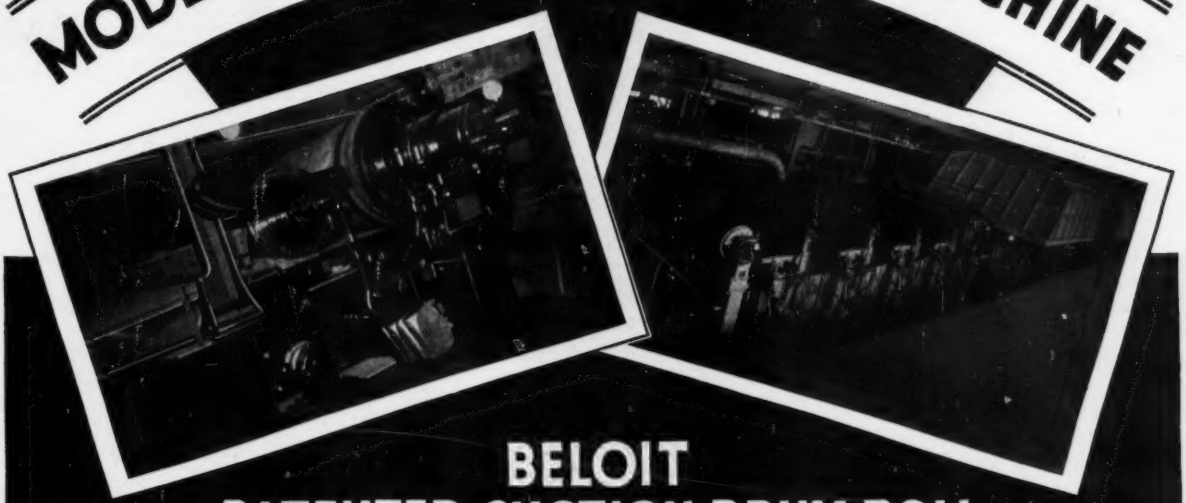
Then the aggregate cost will seem so high that the work is likely to be further deferred. In the meantime obsolescent machinery will be raising production costs.

As we have been specializing for many years in modernizing equipment, we should like to give you the benefit of our experience in this direction. Our engineering staff is prepared at any time to go over modernization plans with you and quote prices. We wish again to call your attention to our chief products: THE GREAT NORTHERN GRINDER; DRIVE STANDS; ANTI-FRICTION APPLICATIONS; THE MONTAGUE SCREEN; and a variety of specialties.

MONTAGUE MACHINE COMPANY
TURNERS FALLS, MASS.

Entered as second class matter at the Post Office at East Stroudsburg, Pa., under the Act of Congress of March 3, 1879. Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., East Stroudsburg, Pa. Executive and Editorial Offices: 15 W. 47th St., New York, N. Y. Domestic subscription U. S. and possessions, $4.00 per year. 10 cents per copy.

MODERNIZE YOUR BOARD MACHINE



BELOIT
PATENTED SUCTION DRUM ROLL

The most effective method of removing water from boards without sacrificing quality & formation. Read what the management of a board mill has to say about Beloit Suction Drum Roll recently installed..

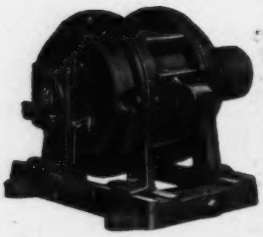
"We think the Beloit suction drum roll is the most important piece of equipment that we have ever installed in this plant and we are sold on the performance of it. Our machine tenders feel that the biggest part of their troubles has been eliminated since this roll has been installed."

Why drastically press your board when BELOIT SUCTION DRUM removes much more water without any nip pressure..?

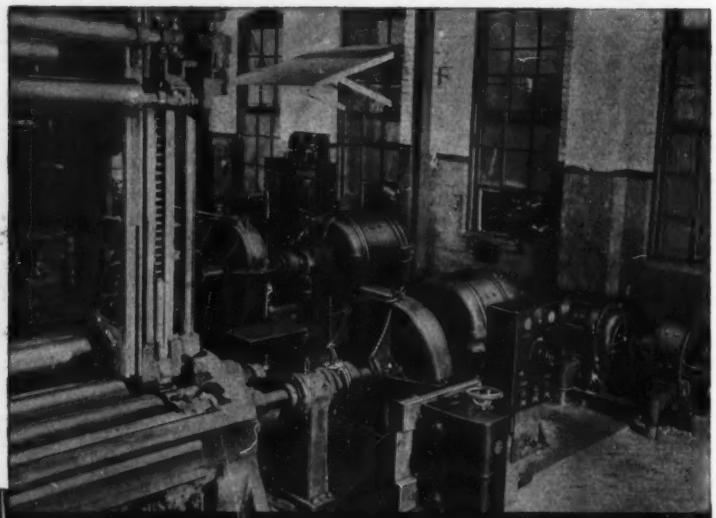
The Beloit Way is the Modern Way

BELOIT IRON WORKS PAPER MACHY BELOIT WIS.

Build Greater Profits with

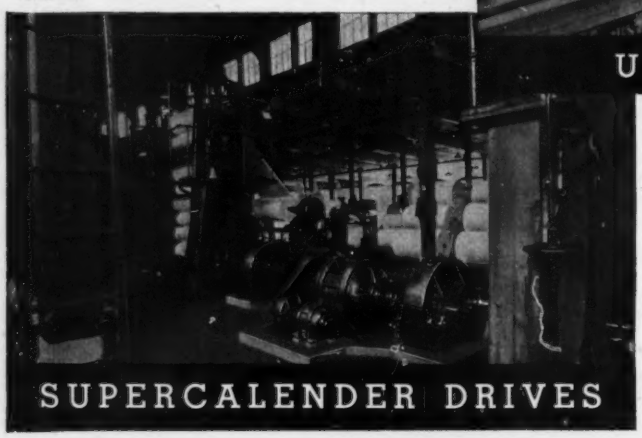


G-E general-purpose motors and control provide dependable, efficient drives for folders, punches, and similar equipment



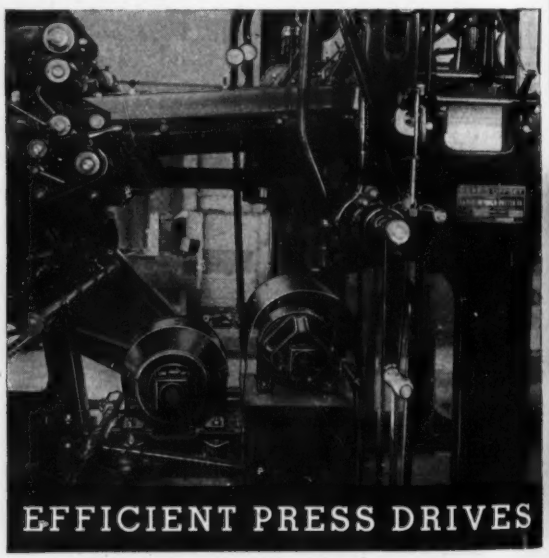
UNIFORM WINDING

ABOVE: Operating a winder in an up-to-date paper mill, this G-E variable-voltage drive has regenerative-braking tension control that produces a uniformly wound roll



SUPERCALENDER DRIVES

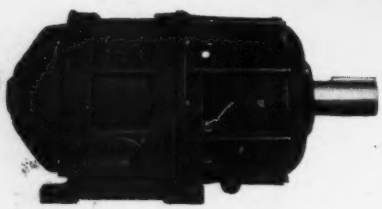
LEFT: Constant speed for threading, smooth acceleration, and constant speed for calendering are provided by these G-E double-motor supercalender drives. Their semi-automatic or full-automatic controls are easy to operate



EFFICIENT PRESS DRIVES

G-E motors and control for printing presses provide efficient drives, and place positive, accurate control of the press at your pressmen's finger tips

RIGHT: For waxing machines and other equipment requiring adjustable-speed drives, the G-E Type BTA motor is efficient and economical. Speed is quickly and accurately adjusted by shifting the brushes



LEFT: G-E gear-motors provide a compact, space-saving drive for low-speed applications These motors are available in speeds ranging from 11 rpm. to 600 rpm.

G E N E R A L

Modern Electric Equipment

THE present trend toward stabilization of so many production costs makes efficient, economical production machinery more and more important as a profit builder.

Illustrated on this page is part of General Electric's complete line of electric equipment for the paper-mill finishing room—equipment that has helped many mills to increase their profits. Mills using G-E equipment obtain such advantages as:

1. Greater speed of production
2. A more uniform product, which decreases waste, increases production and customer satisfaction
3. Money saved through reduced maintenance

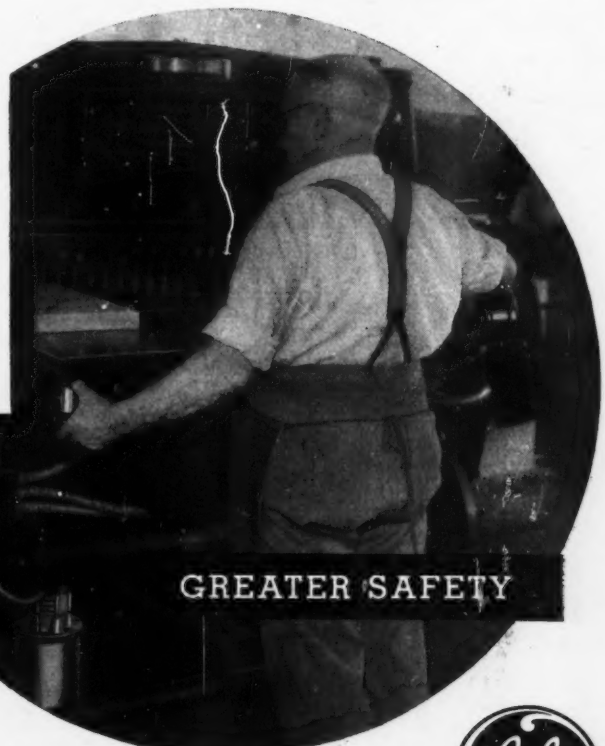
G-E equipment, whether it is a double-motor drive for a supercalender or electric heating devices for gluepots, is scientifically designed to save the time of your workers and help them speed up production.

On equipment such as the G-E variable-voltage winder drive, with its regenerative-braking tension control, special design features contribute to the uniformity of your product in its finished form.

G-E quality—both of materials and workmanship—is your assurance of equipment that will perform successfully for many years and save money by reducing maintenance.

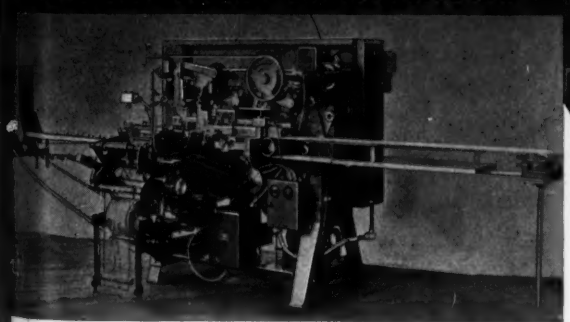
Whether you are buying new equipment, or modernizing existing machines, investigate the profit-building possibilities of General Electric apparatus. General Electric Company, Schenectady, N. Y.

Electrically heated G-E gluepots are especially valuable in the finishing room, because they are portable and give safe and steady heat



G-E Thrustors for paper cutters help protect the operators and save you money by reducing insurance rates

SPEED AND ACCURACY



This wrapping machine uses G-E photoelectric equipment to synchronize cutting and printing. G-E photoelectric relays provide an efficient, economical method of counting, grading, and handling similar jobs requiring speed and accuracy

011-34

GE

ELECTRIC

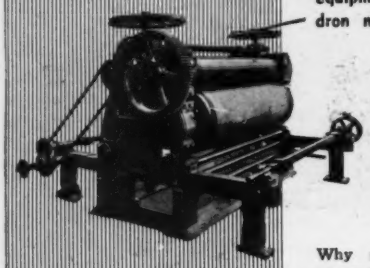
WALDRON MACHINES

..to improve quality increase output reduce costs..

for .. more profitable converting in 1935

Satisfy yourself as to the extent of the economies and advantages of modernizing your equipment with rugged Waldron machines for . . . .

COATING
LAMINATING
EMBOSSING
PRINTING
GUMMING
CREPEING
SLITTING
WINDING



"Centennial" Embosser

Why not discuss present or prospective processing requirements with a Waldron engineer. Get his recommendations. No obligation incurred.

OVER A CENTURY OF EXPERIENCE

JOHN WALDRON CORPORATION

Main Office and Works: NEW BRUNSWICK, N. J.

New York Chicago Portland, Ore.

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Our increasing business justifies our optimism that 1935 will be a prosperous year for the Paper Industry.

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DIVISION OF THE CALCO CHEMICAL CO., INC.

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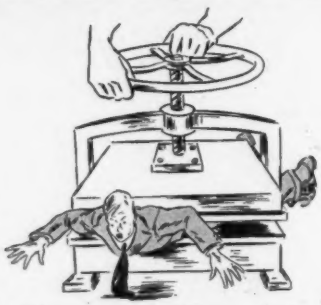
A Division of American Cyanamid Company



The Paper Buyer is a TOUGH GUY

The instrument is provided with an extension which enables you to obtain temperatures of those hard-to-reach surfaces.

He always wants lower prices. Sometimes his complaints about products are justified but other times not. The use in your mill of the Cambridge Surface Pyrometer will go a long way toward satisfying him as to the uniformity of your paper and will lower your production costs in savings in steam. The Cambridge Surface Pyrometer, for use on moving drying rolls enables you to accurately check over-heated or water-logged rolls. It has further use in checking steam line insulation.

CAMBRIDGE INSTRUMENT CO INC

3732 GRAND CENTRAL TERMINAL, NEW YORK

SURFACE PYROMETERS

Send for details of this instrument. It will help you to save money and make better paper.

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY

CANTON, MASS.

Woolen manufacturers since 1856

Water Drains Freely through Smooth *Moulded* Holes

DRYING determines to a great extent the speed of your paper machine . . . and your cost per ton of paper. You can't make more paper per hour than you can dry. And that harks back to drainage . . . the ability to remove water from the paper before it reaches the dryers.

Superintendents generally, concede the efficiency of Suction press rolls for water removal. Now along comes the Tensilastic rubber covered Suction roll with smooth *moulded* holes insuring greater efficiency in water removal, because moulded holes do not plug so readily!

A plugged hole can't drain water freely. There's a big difference between a drip, drip, drip, and a constant steady stream.

Because the holes in this new roll are smooth, stock doesn't so readily adhere to the sides, accumulate and plug the hole. There is a constant complete drainage at all times, consequently drying is accomplished at a lower steam pressure.

◂ TENSILASTIC ▸
Rubber Covered Suction Roll

This Tensilastic rubber covered Suction roll with its smooth **moulded* holes makes possible a better sheet, a stronger, higher quality, better finish paper. It eliminates shadow marks, crushes, cockles. A lighter, softer felt can be used, and felt life and water removal increased.

Tensilastic rubber covered Suction rolls have given very fine accounts of themselves in the past, because they were Tensilastic. But this new, exclusive, patented process of moulding, not drilling, the holes adds considerably to their efficiency. Being Tensilastic, there is a quick rebound, the roll springs back into its original form after pressure, faster than other rubber covers, and the holes are wide open to carry off the water on the next revolution.

If you are interested in lower drying costs, longer felt life, a better sheet—install this new *moulded* hole TENSILASTIC rubber covered Suction roll, first, because it's Tensilastic; second, because of the smooth *moulded* holes. You'll get real Suction roll performance.

If you are now using Suction rolls, we can cover them by this new smooth hole process with Tensilastic compound. Send them in.

AMERICAN WRINGER COMPANY, Inc.

Rubber Roll Specialists For More Than 40 Years

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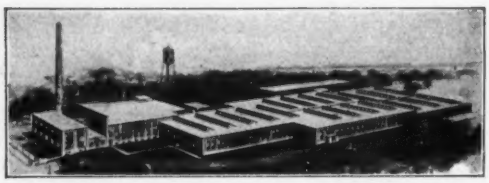
KENWOOD WOOL PRODUCTS REG. U.S. PAT. OFF.

Manufacturers of Kenwood Felts and Jackets for all Pulp and Paper Making Purposes since 1870



KENWOOD MILLS LTD. ARNPRIOR ONTARIO, CAN.

NRA

MARCY OPEN-END ROD MILLS

for Perfect Beating of Every Type of Stock

FACTS

1. Positively reduce power costs.
2. Absolute control under all conditions.
3. Maximum preservation of initial strength.
4. Preserve full fibre length.
5. Positive separation of fibre bundles.
6. Positively no unbeaten stock by-passed.

By equipping your mill with MARCY ROD MILLS—you reduce upkeep and labor costs—yet produce a product of highest quality.

Specific inquiries are invited.

The MINE and SMELTER SUPPLY COMPANY

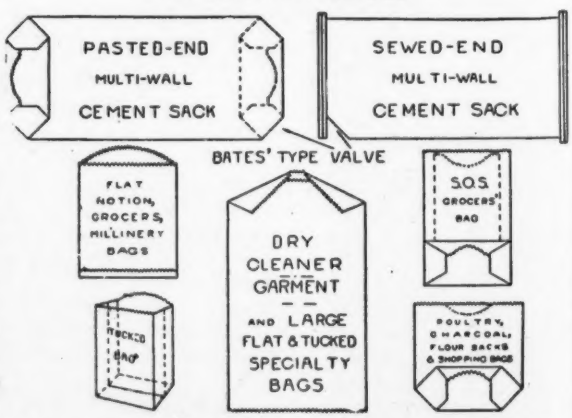
Denver, Colorado

POTDEVIN

OVER 60 MODELS OF PAPER BAG

MACHINERY

FOR PLAIN OR PRINTED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TUCKED END
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ALWAYS IN THE MARKET FOR

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All types and shades of Oxides of Iron

YELLOWS
Ochres
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Asbestines and Talcs for Fillers

C. K. WILLIAMS & CO.

EASTON, PA.

Dietz Towel Interfolding Machines also

TOILET PAPER MACHINES

For making Toilet and Paper Towel Rolls
(With or without perforations)

AUTOMATIC TUBE MACHINES

For Making Wire-Stitched Toilet Tubes

Sanitary Crepe Towel Machines, Roll Tighteners, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.
Correspondence solicited

DIETZ MACHINE WORKS

126-128 W. Fontaine Street
Cor. Waterloo St. (between Front & Second Sts.)
and below Diamond St.
Phila., Penna., U. S. A.

GIANT

RAGS—BURLAP
BAGGING—ROPE

JUTE BUTTS, MAGAZINES, CATALOGS
OLD PAPERS, THREAD WASTE AND
ALL GRADES OF RAGS
CUT QUICKLY AND EFFICIENTLY
WITH THE

TAYLOR, STILES & COMPANY — GIANT — REG. U.S. PAT. OFF. — RIEGELSVILLE, N.J. U.S.A.

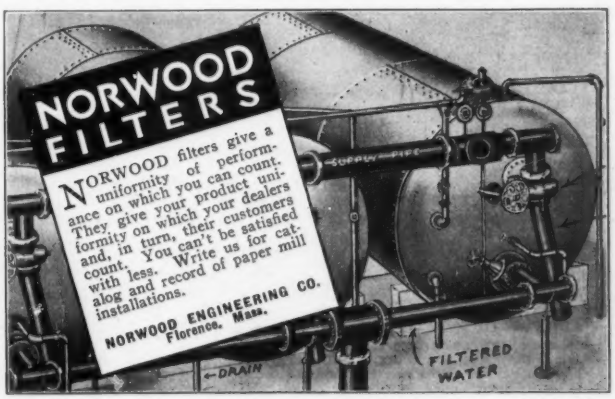
This is the GIANT 2A CUTTER WITH A CAPACITY OF 3600 lbs. PER HOUR
GIANT RAG CUTTERS HAVE CAPACITIES OF FROM 1 to 5 tons per hour.

THE STANDARD OF THE WORLD FOR 60 YEARS

TAYLOR, STILES & COMPANY
RIEGELSVILLE, N. J.
CANADIAN REPRESENTATIVES
Waterous Engine Works Company, Ltd., Brantford, Ont., Canada
SOLE AGENTS FOR EUROPE
R. J. Marx, 133-139 Finsbury Pavement, London, E. C.

WALPOLE PAPER MAKERS IMPORTING CO. INC. — WALPOLE, PENNSYLVANIA, U.S.A.

FINEST PAPER CLAYS


NORWOOD FILTERS
NORWOOD filters give a uniformity of performance on which you can count. They give your product uniformity on which your dealers and, in turn, their customers count. You can't be satisfied with less. Write us for catalog and record of paper mill installations.
NORWOOD ENGINEERING CO.
Florence, Mass.
SUPPLY PIPE
DRAIN
FILTERED WATER

The CLEARING HOUSE of THE PAPER TRADE

"SITUATIONS WANTED" ADVERTISEMENTS—4c a word, double rates for heavy face type. Minimum charge $1.00. If repeated ½ rate will be charged for each consecutive repetition.

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All classified "Help Wanted" and "Situation Wanted" advertisements are payable in advance.

HELP WANTED

SALARIED POSITIONS. $2,500 to $25,000. This thoroughly organized advertising service of 25 years' recognized standing and reputation carries on preliminary negotiations for positions of the calibre indicated, through a procedure individualized to each client's personal requirements. Several weeks are required to negotiate and each individual must finance the moderate cost of his own campaign. Retaining fee protected by a refund provision as stipulated in our agreement. Identity is covered and, if employed, present position protected. If you have actually earned over $2,500, send only name and address for details. R. W. Bixby, Inc., 117 Delward Bldg., Buffalo, N. Y.

FIRST CLASS ADJUSTER on Potdevin Flat and Square Specialty Machines. State experience. All information confidential. Write Box 34-562, care Paper Trade Journal. J-3

WANTED—TECHNICAL ENGINEER with the paper mill experience. Capable of taking charge of the operation of a modern tissue mill in the East. Address Box 34-568, care Paper Trade Journal. D-27

WANTED—DRAFTSMAN familiar with design of Paper Mill Machinery. When applying state fully experience, training, age and salary desired. Address Box 34-569, care Paper Trade Journal. D-27

WANTED—Expert Paper Mill Supervisor, especially experienced in light weight tissues. Must have thorough knowledge of modern machine operation. Address Box 34-582, care Paper Trade Journal. D-27

SITUATIONS WANTED

EXECUTIVE MANAGER—Aggressive, experienced, capable of assuming full responsibility. Desires position with fine paper jobbing house. Address Box 34-583, care Paper Trade Journal. D-27

SATIN WHITE MAKER—8 years' experience modern big scale manufacture, extensive research with coating problems, mill trouble shooter. University graduate with experience including service work and demonstrating Rosin Size. Age 32. Executive ability. Will go anywhere. Address Box 34-584, care Paper Trade Journal. D-27

GROUNDWOOD SUPERINTENDENT or **TOUR BOSS**—20 years' experience in United States and Canada, on all types of grinders and all grades of pulp. Good on maintenance. Age 42. References. Address Box 34-585, care Paper Trade Journal. J-3

EXPERIENCED PAPER BAG SALESMAN, commanding Jobbing Trade in Eastern Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia, Virginia and North Carolina, is open for a first class proposition from A-1 manufacturer. Highest references furnished. Address Box 34-559, care Paper Trade Journal. D-27

SALES or OFFICE—Experienced as salesman, salesmanager and treasurer. Handling fine and coarse papers and specialties. Full details available. With mills and dealers. Address Box 34-574, care Paper Trade Journal. J-3

SITUATIONS WANTED

RESIDENT MANAGER or ENGINEER wishes to contact a paper mill employer who can use the services of an executive with 23 years' experience in engineering, production and management. I am a technical graduate, American, Protestant, married, 45 years. Complete details of my experience and references upon request. Address Box 34-554, care Paper Trade Journal. D-27

BEATER ROOM FOREMAN, who is good on colors, wishes to make a change. Experience on most all grades. Have held position as Mill Superintendent. Good references as to character and ability. Address Box 34-566, care Paper Trade Journal. D-27

GLASSINE SUPERINTENDENT wishes to make change. Years of experience with leading manufacturers. Thorough knowledge of latest development in flexibility and Super-Transparency. Guarantee best results on all grades of Glassine and Greaseproof. Best references. Address Box 34-565, care Paper Trade Journal. D-27

MISCELLANEOUS

CLARK MANUFACTURING COMPANY, Holyoke, Mass. Telephone 2-4370. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight for fast running machines. tf.

BUSINESS OPPORTUNITIES

SEVERAL thousand dollars to invest in going jobbing house located in N. J., Penna. or N. Y. outside of Metropolitan District of N. Y. and Philadelphia. Confidential. Address Box 34-577, care Paper Trade Journal. D-27

REPUTABLE French mill manufacturing new machines for the conversion of paper and cellophane (machines for making bags of all sizes and kinds, printing machines, rotary cutters, etc.) is looking for live agent, with good connections in this line, and with good references. Submit detailed information to Mr. Kable, Case 54/6 Rue Vivienne 17, Paris, France. D-27

Address Replies

to advertisements appearing under Box Numbers in care of

PAPER TRADE JOURNAL

15 West 47th Street
New York, N. Y.

SITUATIONS WANTED

SUPERINTENDENT desires a new connection with board mill. First class man on specialties, combination, and all other grades of board. Good on repairs and maintenance. Best of references. Address Box 34-572, care Paper Trade Journal. D-27

GRADUATE CHEMICAL ENGINEER—Five years' mill experience with Tissue and Book, seven years in research laboratory. Can improve the economy of your plant and the quality of your product. Address Box 34-576, care Paper Trade Journal. D-27

WANTED

WANTED—One 82 paper machine Bird Screen. Give serial number, price and location. Address Box 34-546, care Paper Trade Journal. J-17

WANTED—One color rotary press suitable for printing toilet paper labels. Address Box 34-547, care Paper Trade Journal. J-17

WANTED—Good used Mayer Wire Waxing Machine. State age, condition, price and where it can be seen. Address Box 34-567, care Paper Trade Journal. D-27

SECOND hand toilet rewinders. State details, price and terms. Also embosser, send design, state details, etc. Write Box 34-578, care Paper Trade Journal. D-27

WANTED—62" Cameron Type 9, Model 5 Slitter and Rewinder. Give equipment and price. Address Box 34-579, care Paper Trade Journal. D-27

WANTED—82 Bird screen and flat screens. Address Box 34-586, care Paper Trade Journal. J-10

WANTED—Ten 4' diameter by 132" face paper machine dryers. State price, location and age, also name of manufacturer. Address Box 34-587, care Paper Trade Journal. J-17

FOR SALE

PAPER COATING MACHINERY—Waxing, Oiling, Gumming, Gluing, Asphalt Duplexing Laboratory Coating and Treating machines. High speed. New improvement. MAYER COATING MACHINES COMPANY, INC., Rochester, N. Y. T.F.

FOR SALE—74" Seybold "Holyoke" Paper Cutter Heavy Duty Machine, condition guaranteed. Address Box 34-116, care Paper Trade Journal. D-27

FOR SALE

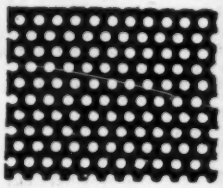
Fourdrinier Paper Machines with wires 107"—97"—90"—88". New Cylinder Paper Machines 90" wide. Hamblet & Moore & White Cutters 36" to 90" wide.

FRANK H. DAVIS COMPANY

175 Richdale Ave. Cambridge, Mass. TF

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

".065" Round

CHARLES MUNDT & SONS

63-65 FAIRMONT AVE. JERSEY CITY, N. J.

LANGSTON

FOR ROLLS THAT ARE SQUARE-EDGED, HARD-CENTERED AND DUST FREE

SAMUEL M. LANGSTON CO. CAMDEN, N. J.

SLITTERS

JORDANS

Noble & Wood Machine Co.
Hoosick Falls, N.Y.

Pulp and Paper Mill Screens

Of Stainless Steel—Copper—Bronze—Monel—Chemical Resisting Alloys

Perforations that are accurate in size

Any Metal Any Perforation

The Harrington & King PERFORATING CO.

5652 FILLMORE ST., CHICAGO, ILL. 114 LIBERTY ST., NEW YORK, N.Y.

"YOUR PAPER IS MADE IN YOUR BEATERS"

Dilts

MACHINE WORKS Inc. FULTON, N.Y.

Condor Compensated BELTS

THE LOW TENSION RUBBER BELT FOR THE PAPER INDUSTRY

THE MANHATTAN RUBBER MFG. DIVISION OF RAYBESTOS-MANHATTAN, INC.

EXECUTIVE OFFICES AND FACTORIES, PASSAIC, NEW JERSEY

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The Paper Trade Journal publishes the happenings of interest in the Pulp and Paper Industry—Covers it completely is saying it a little clearer.

To reach buyers in this field, advertising in these columns can carry your message to many that are interested in your products.

As a member of the Audit Bureau of Circulations our circulation claims are not only authentic but provable.

The Paper Trade Journal
15 West 47th St. New York

THE PUSEY AND JONES CORPORATION

Established 1848

WILMINGTON, DELAWARE

PERFORATED METAL SCREENS

MADE SPECIALLY FOR PAPER and PULP MILL USE

Copper, bronze, steel or other metals. Heat-treated.

HENDRICK MFG. CO.

50 Dundaff St. Carbondale, Pa. Offices in Principal Cities

INTERNATIONAL WIRE WORKS

Fourdrinier Wires

MENASHA, WISCONSIN

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Carborundum Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Norton Co.

ACIDS (Sulphuric)
American Cyanamid & Chem. Corp.
Pennsylvania Salt Co.

ADDING MACHINE ROLLS
Paper Manufacturers Co., inc.

ADHESIVE APPLYING MACHINES
Potdevin Machine Co.
John Waldron Corp.

AGITATORS
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Hauser Stander Tank Co.
Moore & White Co.
Valley Iron Works Co.

AGITATOR EQUIPMENT
Downingtown Mfg. Co.

AIR CONDITIONING EQUIPMENT
Ross Engrg. Corp., J. O.
Thwing Instrument Co.

AIR DRYING MACHINERY
Waldron, John, Corp.

AIR PREHEATING UNITS
Ross Engineering Corp., J. O.

ALLOYS
Chromium Corporation of America
Electro-Alloys Co., The
International Nickel Co.
Kropp Forge Co.
Pusey and Jones Corp.

ALUM
American Cyanamid & Chemical Corp.
Paper Makers Chemical Corp.
Pennsylvania Salt Mfg. Co.

AMMONIA
American Cyanamid & Chem. Corp.
Mathieson Alkali Works, Inc.
Pennsylvania Salt Co.

ARCHITECTS AND ENGINEERS
Ferguson, Hardy S.
Hardy, George F.

ARMORING FLOOR
Hendrick Mfg. Co.

ASBESTINE PULP
International Pulp Co.

AUTOMATIC WATER FEEDER
Merritt Engineering & Sales Corp., The

BACKING WIRES
Appleton Wire Works
International Wire Works

BAG MACHINES
Potdevin Machine Co.
Smith & Winchester Mfg. Co.

BALERS
Ohio Cultivator Co.

BARKERS
Carthage Machine Co.
Valley Iron Work Co.

BARS (Beater)
International Nickel Co.

BEARINGS
Chain Belt Co.
Link-Belt Co.
Montague Machine Works
S. K. F. Industries
The Manhattan Rubber Mfg. Co.
Timken Roller Bearing Co.

BEATERS
The Appleton Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Jones & Sons Co., E. D.
Shartle Bros. Mch. Co.
Valley Iron Works Co.

BEATER ATTACHMENTS
Bird Machine Company

BEATER BED PLATES
Dilts Machine Works, Inc.
E. D Jones & Sons Co.
Taylor, Stiles & Co.
Valley Iron Works Co.

BEATER CONTROLS
Thwing Instrument Co.

BEATER ENGINE BARS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
Taylor Stiles & Co.
Valley Iron Works Co.

BEATER HOODS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.

BEATER ROLLS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.

BEATER STOCK RECORDER
Bristol Co., The
Merritt Engineering & Sales Corp., The

BELTING
Goodrich Rubber Co.
Goodyear Tire & Rubber Co.
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Rhoads Sons, J. E.
U. S. Rubber Co.

BELT LACING
Flexible Steel Lacing Co.

BLEACH EJECTORS
Perkins & Sons, Inc., B. F.

BLEACHING APPARATUS
E. D. Jones & Sons Co.
Moore & White Co.

BLEACHING POWDER
Mathieson Alkali Works, Inc.
Pennsylvania Salt Co.

BLEACHING PROCESS
Electro Bleaching Gas Co.
Pennsylvania Salt Mfg. Co.

BLOW PIPING
Moore & White Co.

BLOW PITS
Hauser Stander Tank Co.
Kalamazoo Tank & Silo Co.

BLOWERS (CENTRIFUGAL)
De Laval Steam Turbine Co.
Ross Engineering Corp., J. O.
Sturtevant Co., B. F.

BOILER PRESERVATIVES
Magnus Chemical Co.

BOTTOMS (Steel & Wood)
Harrington & King Perforating Co.
Hauser Stander Tank Co.
Kalamazoo Tank & Silo Co.

BRASS COLLAPSIBLE SHAFTS
Moore & White Co., The

BREAKER BEATER WATER FEEDER
Merritt Engineering & Sales Corp., The

BUCKETS (elevating)
Chain Belt Co.
Hendrick Mfg. Co.
Link-Belt Co.

BULKERS (Pressure)
B. F. Perkins & Son, Inc.

BUNDLING PRESSES
Paper Converting Machine Co., Inc.
Potdevin Machine Co.

BURSTING TESTERS
E. J. Cady & Co.
B. F. Perkins & Son Co.
Testing Machines, Inc.

CALCIUM HYPOCHLORITE
Mathieson Alkali Works, Inc.
Pennsylvania Salt Mfg. Co.

CALENDERS
Beloit Iron Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Moore & White Co.
Norwood Engrg. Co.
Perkins & Son, Inc., B. F.
Smith & Winchester Mfg. Co.
Textile Finishing Mchy. Co.

CALENDER DOCTORS
Downingtown Mfg. Co.
Ticonderoga Machine Works

CALENDER ROLL GRINDERS
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Smith & Winchester Mfg. Co.
Ticonderoga Machine Works

CALENDER ROLLS
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Perkins & Son, Inc., B. F.
Smith & Winchester Mfg. Co.
Textile Finishing Mchy. Co.
Waldron, Corp., John

CALIPERS (Micrometer Roll)
Cady & Co., E. J.
Farrell-Birmingham Co.
Lobdell Car Wheel Co.

CAMERAS (Photomicrographic)
Bausch & Lamb Optical Co.

CARBON BISULPHIDE
Pennsylvania Salt Co.

CASEIN
American Cyanamid & Chemical Corp.
The Casein Manufacturing Co. of America
Paper Makers Chemical Corp.

CASTINGS
Carthage Machine Co.
Chain Belt Co.
International Nickel Co.
Farrel-Birmingham Co.
Frederick Iron and Steel Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Pusey and Jones Corp.

CASTINGS (Brass, Bronze, Iron)
Downingtown Mfg. Co.
Smith & Winchester Mfg. Co.

CASTING (Chrome Nickel Alloy)
Lobdell Car Wheel Co.

CASTINGS (Iron)
Chain Belt Co.
Downingtown Mfg. Co.
Hamblet Machine Co.
Link-Belt Co.

CAUSTIC SODA
American Cyanamid & Chemical Corp.
Mathieson Alkali Works, Inc.
Paper Makers Chemical Corp.
Pennsylvania Salt Mfg. Co.

CELLULOSE BAG MACHINERY
Potdevin Machine Co.

CENTRIFINERS
Bird Machine Company

CENTRIFUGALS
Bird Machine Company

CENTRIFUGAL MACHINERY (Special)
De Laval Steam Turbine Co.

CHAIN DRIVES
Chain Belt Co.
Link-Belt Co.

CHEMICALS
American Cyanamid & Chemical Corp.
Campbell & Co., John
E. I. DuPont de Nemours & Co., Inc.
Electro Bleaching Gas Co.
General Chemical Co.
General Dyestuff Corp
Geigy Co., Inc.
New York Color & Chemical Co., inc.
Paper Makers Chemical Corp.
Williams & Co., C. K.

CHIPPERS
Carthage Machine Co.
Valley Iron Works Co.

CHLORINE
Electro Bleaching Gas Co
Mathieson Alkali Works, Inc.
Pennsylvania Salt Co.

CHROME PLATE
Chromium Corporation of America

CHUCKS
John Waldron Corp.

CLAY
American Cyanamid & Chemical Corp.
Ashcraft Wilkinson Co.
English China Clays Sales Corporation
Paper Makers Importing Co.
Vanderbilt Co., R. T.

CLEANERS (Wire)
Bird Machine Company

CLEANING MATERIALS
Magnus Chemical Co.

CLUTCHES
Chain Belt Co.
Link-Belt Co.
Moore & White Co.
Pusey and Jones Corp.

CLUTCH PULLEYS
Moore & White Co.

COATING MACHINERY
Moore & White Co.
Potdevin Machine Co.
Waldron Corporation, John

COATING MATERIALS
National Oil Products Co.
Paper Makers Chemical Corp.

COCKS, Lubricated
Crane Company

COGS
Bowsher, N. P., The

COLLAPSIBLE WINDER SHAFTS
Moore & White Co.

COLORIMETERS
Bausch & Lomb Optical Co.

COLOR ANALYZERS
Thwing Instrument Co.

COLOR MIXING EQUIPMENT
Waldron, John, Corp.

COMBINING MACHINES
Waldron Corp., John

COMPRESSORS (Air)
Allis-Chalmers Mfg. Co.

COMPRESSORS (Centrifugal)
De Laval Steam Turbine Co.

CONDITIONERS (Felt)
Bird Machine Company

CONSISTENCY REGULATOR
Merritt Engineering & Sales Corp., The
Trimbey Machine Works

CONTINUOUS BEATER ATTACHMENTS
E. D. Jones & Sons Co.

CONTINUOUS BEATERS
E. D. Jones & Sons Co.
Valley Iron Works Co.

CONTINUOUS BEATER WATER FEEDER
Merritt Engineering & Sales Corp., The
Trimbey Machine Works.

CONTROLLING INSTRUMENTS
Bristol Co., The
Merritt Engineering & Sales Corp., The
Testing Machines, Inc.
Thwing Instrument Co.

CONTROLS (Electric)
Thwing Instrument Co.

CONVEYOR CHAINS
Chain Belt Co.
Link-Belt Co.

CONVEYORS (Trim)
Link-Belt Co.
Ross Engineering Corp., J. O

COOKING & RECOVERY PROCESS
Chemipulp Process, Inc.
Ross Engineering Corp., J. O

CORES (Paper)
Climax Tube Co.
Elixman Paper Co.

CORES (Steel)
Smith & Winchester Mfg. Co.

COTTON CALENDER ROLLER
Perkins & Son, Inc., B. F.
Textile Finishing Mchy. Co.

COUCH ROLLS
American Wringer Co.
Beloit Iron Works
Goodrich Rubber Co., B. F.
Montague Machine Co.
Moore & White Co., The
The Manhattan Rubber Mfg Division of Raybestos-Manhattan, Inc.
Pusey and Jones Corp.

COUPLINGS
Chain Belt Co.
De Laval Steam Turbine Co.
Frederick Iron and Steel Co.
Waldron Corp., John
Walworth Co.

CREPING MACHINES
Beloit Iron Works
Downingtown Mfg. Co.
Paper Converting Machine Co., Inc.
John Waldron Corp.

CUTTERS
Downingtown Mfg. Co.

CYLINDER RAILROAD AND DEVIL DUSTER
Moore & White Co.

CYLINDER DRIVES
Moore & White Co., The

CYLINDER MOULDS
Beloit Iron Works
Carthage Machine Co.
Downingtown Mfg. Co.

CYLINDER WIRES
Appleton Wire Works
International Wire Works

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DAMPENERS
Perkins & Son, Inc., B. F.
DECKERS
Carthage Machine Co.
Montague Machine Co.
Oliver United Filters Inc.
Valley Iron Works
DEFOAMERS
Campbell & Co., John
National Oil Products Co.
DENSITY REGULATOR
Merritt Engineering & Sales Corp., The
DENSOMETERS
W. & L. E. Gurley
DIE CUTTERS
Appleton Machine Co., The
DIGESTERS
Pusey & Jones Corp.
DOCTORS
Bird Machine Company
DOCTOR BLADES
Goodrich Rubber Co., B. F.
International Nickel Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc
DRIVES
Bird Machine Company
DRIVE STANDS
Beloit Iron Works
Moore & White Co.
Pusey and Jones Corp.
DRIVES (Paper Machinery)
Beloit Iron Works
Chain Belt Co.
Farrel-Birmingham Co.
General Electric Co.
Link-Belt Co.
Pusey & Jones Corp.
DRYING SYSTEMS
Ross Engineering Corp., J. O.
Waldron Corporation, The
DUSTING MACHINERY
Carthage Machine Co.
Jones & Sons Co., E. D.
Moore & White Co.
DYESTUFFS & COLORS
Campbell & Co., John
E. I. DuPont de Nemours & Co.
General Dyestuff Corp.
Heller & Merz
Geigy Co., The
National Aniline & Chemical Co.
New York Color & Chemical Co., Inc.
United Color & Pigment Co.
C. K. Williams & Co.
ELECTRIC EQUIPMENT
Allis-Chalmers Mfg. Co.
General Electric Co.
ELEVATORS
Chain Belt Co.
EMBOSSING CALENDERS
Perkins & Sons, Inc., B. F.
Textile Finishing Machinery
EMBOSSING MACHINES
Hudson Sharp Machine Co.
Paper Converting Machine Co.
John Waldron Corp.
EMBOSSING ROLLS
The Appleton Machine Co.
Hudson Sharp Machine Co.
B. F. Perkins & Son, Inc.
Textile Finishing Mchy. Co.
Waldron Corporation, John
EXHAUST FANS
Propellair, Inc.
EXTRACTORS
Downingtown Manufacturing Co.
Valley Iron Works Co.
EXTRACTORS (Beater)
Bird Machine Company
FANS
E. D. Jones & Sons Co.
B. F. Perkins & Son, Inc.
Propellair, Inc.
Ross Engineering Co., J. O.
Sturtevant Co., B. F.
FAN PUMPS
Beloit Iron Works
Carthage Machine Co.
Moore & White Co.
Pusey and Jones Corp.
Valley Iron Works Co.
Smith & Winchester Mfg. Co.
FELT CARRIER ROLLS
American Wringer Co.
Beloit Iron Works
Downingtown Mfg. Co.
Goodrich Rubber Co., B. F.
Pusey and Jones Corp.
FELT CLEANERS
Magnus Chemical Co.
FELTS AND JACKETS
Appleton Woolen Mills
Bulkley, Dunton & Co.
Draper Bros. Co.
Huyck & Son, E. C.
Knox Woolen Co.
Lockport Felt Co.
Orr Felt & Blanket Co.
Philadelphia Felt Co.
Shuler & Benninghofen
Turner, Halsey Co.
Waterbury Felt Co.
FELT GUIDES
Moore & White Co.
FELT SOAPS
Magnus Chemical Co.
FELT TIGHTENER (Automatic)
Pusey and Jones Corp.
John Waldron Corp.
FILLINGS (Jordan)
Internstional Nickel Co.
FILTERS
Moore & White Co.
Norwood Engrg. Co.
Oliver United Filters Inc.
J. O. Ross Engrg. Corp.
FILTER CLEANERS
Magnus Chemical Co.
FILTER WIRES
Appleton Wire Works
FITTINGS (Pipe)
Crane Company
FLANGES
Crane Company
Walworth Co.
FLAT SCREENS
The Appleton Machine Co.
Beloit Iron Works
Downingtown Mfg. Co.
FLEXIBLE COUPLINGS
Chain Belt Co.
De Laval Steam Turbine Co.
Frederick Iron & Steel Co.
Link-Belt Co.
John Waldron Corp.
FLEXIBLE SLICE
E. D. Jones & Sons Co.
FLEXIBLE STEEL LACING
Flexible Steel Lacing Co.
FLOOR TILE (Non-Slip)
Carborundum Co.
Norton Co.
FLY BARS
Dilts Machine Works, Inc.
Jones & Sons Co., E. D.
FOLDING ENDURANCE TESTERS
Testing Machines, Inc.
FOLDING MACHINES
Hamblet Machine Co.
Hudson Sharp Machine Co.
Paper Converting Machine Co., Inc.
Waldron, John, Corp.
FORGINGS (Drop & Hammer)
Kropp Forge Company
FORMING MACHINES
Downingtown Mfg. Co.
FOURDRINIER MACHINES
Downingtown Mfg. Co.
FOURDRINIER WIRES
Appleton Wire Works
International Wire Works
FREENESS RECORDERS
Trimbey Machine Works
FREENESS TESTERS
Testing Machines, Inc.
FRICTION CALENDERS
Perkins & Son, Inc., B. F.
Textile Finishing Mchy. Co.
FRICTION CLUTCHES
Beloit Iron Works
Link-Belt Co.
Moore & White Co
Pusey and Jones Corp.
GEARS
Chain Belt Co.
Farrel-Birmingham Co.
De Laval Steam Turbine Co.
E. D. Jones & Sons Co.
Link-Belt Co.
Moore & White Co.
Sturtevant Co., B. F.
Pusey and Jones Corp.
John Waldron Corp.
GENERATORS
De Laval Steam Turbine Co.
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AGENTS

PRICE & PIERCE, Ltd.,

60 EAST 42nd ST.
NEW YORK

West Virginia Pulp and Paper Company

230 Park Ave.
New York

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Chicago

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Sixth and Chestnut Sts., Philadelphia, Pa.

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High Grade Coated Book

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Industrial
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PLANTS IN ALL PAPER-MAKING AREAS

Distributor of Hercules Wood Rosins and Steam-distilled Pine Oils

1864 1934

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KNOX WOOLEN CO.
CAMDEN, MAINE

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OR DIRECT

10 Operations 22 Inspections

IN the making of a Hamilton Felt there are ten distinct manufacturing operations from the time the fleece is graded until the felt is packed for shipment.

Ten operations! Yet, there are twenty-two inspections.

There's a constant check and check and check and check. These are in addition to that given by each workman or operator over his or her own work.

Seventy-six years of experience have shown that you just can't be too careful of a Hamilton Felt. Just a few threads only a trifle short of perfection will throw a wrinkle clear across the felt — a wrinkle that will bother you as a paper maker as long as that felt is in service.

Paper makers who use Hamilton Felts know what this constant checking — this seventy-six years of experience — means. The result of it all is better paper at lower cost, less down time, greater tonnage, and decreased felt expense. Try a Hamilton Felt. Prove to yourself that there are felts and Hamilton Felts.

SHULER & BENNINGHOFEN, Hamilton, Ohio . . . *Miami Woolen Mills, Established 1858*

Hamilton Felts are marked by two blue lines full width of felt and by one blue line midway between them.

Hamilton Felts

76 YEARS OF EXPERIENCE MAKE A WORLD OF DIFFERENCE